The Adoption of IAS/IFRS: the Case of Greece

Eleni Chatzivgeri

Submitted for the degree of Doctor of Philosophy

Heriot-Watt University

School of Management and Languages

November 2013

Abstract

International Accounting Standards/ International Financing Reporting Standards (IAS/IFRS) were developed with a view to harmonizing accounting practices. Despite the fact that several papers have examined the effect of IAS/IFRS on equity and debt markets, only few have focused on Greece.

The present thesis uses both polled and panel data (fixed and random effects techniques) analysis techniques. Using data from 181 Greek companies listed on the Athens Stock Exchange, the results show that firstly, IAS/IFRS adoption and earnings management are negatively related suggesting that Greek companies tend to use fewer discretionary accruals after IAS/IFRS adoption as a way of earnings management. Secondly, the adoption of IAS/IFRS lowered the cost of debt of Greek companies implying that the increased quality as well as quantity of accounting disclosures reduces the uncertainty regarding a company's default risk and the mis-coordination between companies and suppliers, which in turn enables companies to borrow at better terms. Finally, the results indicate that IAS/IFRS adoption increased the gearing level of Greek companies, implying that the decreased uncertainty and risk of a company through IAS/IFRS adoption, enhances the company's borrowing bargain power and subsequently its gearing level.

Acknowledgements

I would like to thank my two supervisors Prof. Claire Marston and Dr. Santhosh Abraham for their never ended support and motivation. I owe debt to both of them for their valuable recommendations throughout my PhD. I would also like to address my profound appreciation to Heriot-Watt University Services for their financial support.

I owe thanks as well to Dr. Audrey Paterson who has offered me constructive comments and provided a supportive environment.

On a more personal note, I must thank Dr. Bashar Abu Khalaf for his practical and emotional support as well as his valuable comments. I must thank my close friends Kostas Bakoulas, Eleana, Isidora, Zoi and Effie for never compromising their friendship.

Lastly, I am grateful for the support of my family, especially for the support of my beloved sister Dimitra who has been an inspiring and motivating example for me.

List of Contents

Abbreviations

ASE	Athens Stock Exchange
ECB	European Central Bank
EU	European Union
GAAP	Generally Accepted Accounting Principles
GDP	Gross Domestic Product
GLS	Generalized Least Squares
HCMC	Hellenic Capital Market Commission
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IASC	International Accounting Standards Committee
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
SA	European public limited-liability company
SOL	Greek Body of Sworn Accountants
VIF	Variance Inflation Factor

Tables

Chapter 1
Introduction

1.1 Motivation of the Study

In 2001 the European Commission decided that all listed companies should adopt the International Accounting Standards/International Financial Reporting Standards (IAS/IFRS) with effect from January 2005. Specifically, all listed companies were expected to adopt by 1 January 2005 all the standards that had been issued before March 2004. All those issued after March 2004 were to be adopted from 2006 or later. This was the "stable platform" of 21 months of no further changes (Roberts *et al.*, 2005). The adoption of a common set of accounting standards should have led to a reduction of costs and uncertainty and enabled comparability among a parent company and its subsidiaries as well as among entities in the same industry but in different countries. The increased comparability and the fact that the IAS/IFRS were considered to be of higher quality than domestic standards also encouraged countries that were not members of the European Union (EU) to adopt the IAS/IFRS (Tsalavoutas, 2009). Therefore, foreign investors should have been attracted to invest in countries that had adopted the IAS/IFRS, because financial information could be compared among these countries.

Each country has a different political and economic system, different legal system, different taxation system, etc. This means that the accounting regulations followed by each country are not the only element of its financial reporting system; the abovementioned systems may also affect each country's financial reporting system (Tsalavoutas, 2009). According to Nobes (2006) and Soderstrom and Sun (2007), each country's accounting system is also affected by its culture and its methods of enforcement.

This thesis seeks to investigate three dimensions of the adoption of IAS/IFRS by taking into consideration the Greek accounting environment. Firstly, it examines whether the use of creative accounting, and specifically whether earnings management, decreased after the adoption of IAS/IFRS, because Greece has been classified as having one of the highest level of earnings management of any country (Leuz *et al.*, 2003). Spathis and Georgakopoulou (2007) argue that stakeholders play an important role in the Greek accounting system since stakeholders seek companies with less-volatile earnings; thus,

Greek companies (along with other code-law countries) tend to report higher levels of earnings smoothing. Secondly, the thesis examines whether the transition from Greek Generally Accepted Accounting Principles (GAAP) to IAS/IFRS affected the cost of debt of Greek companies, because it is assumed that the adoption of IAS/IFRS, considered to be of higher accounting quality than Greek GAAP, enabled lenders to charge lower risk premiums because of the decreased uncertainty regarding the company's default risk. At the same time, the introduction of accounting standards that did not exist under Greek GAAP, or did exist but were different from those required under Greek GAAP, is expected to have affected cost of debt. Lastly, this thesis examines the effect of the IAS/IFRS adoption on gearing, since there is a possibility that debt finance became more readily available after the adoption of IAS/IFRS; it has been argued that a company's potential risk and uncertainty can be reduced through the improvement of financial reporting quality (Ball *et.al.*, 2003) which in turn increases the company's borrowing bargain power and credibility (Iatridis, 2010). The three empirical chapters' dataset includes eight years (2001–2008) and 181 Greek companies.

1.2 The Relevance of Greece to the Dimensions Examined

The thesis focuses on a single country because it has been argued that studies focusing on a single country take into consideration the country's context and have the advantage of bringing to light the implicit information for comparative studies (Weetman, 2006). On the other hand, studies that focus on a single country may include small datasets. However, this limitation may be overcome by looking at the adoption of IAS/IFRS, because it enables comparability between companies. Finally, a study that focuses on a single country takes into consideration political or institutional factors that may have affected companies' reporting and the behaviour of investors (Tsalavoutas, 2009).

Greece constitutes an interesting case because it has a unique environment. The implementation of accounting regulations in Greece is not strong (La Porta *et al.*, 1998; Baralexis, 2004), and its accounting profession is weak and young, whereas the use of creative accounting in Greece is high (Baralexis, 2004).

According to Leuz *et al.* (2003), Greece is one of two countries (the other one being Austria) with the highest levels of earnings management. Thus, the public does not trust the published accounting numbers while, as will be explained later (Section 2.4.3,

Chapter 2), there is high ownership concentration (Ballas, 1994). Moreover, according to Ding *et al.* (2007), the IAS/IFRS and Greek GAAP are significantly different, which means that the financial statements published after the adoption of IAS/IFRS should be significantly different from those published under Greek GAAP. However, the Greek market has been accounted as a developed market since 2000 (Mantikidis, 2000, cited in Tsalavoutas, 2009), and in 2006, foreign investors possessed approximately 50% of Greek market capitalization (Central Security Depository, 2006).

The compliance of Greek companies with the IAS/IFRS is of high concern because, according to Nobes and Parker (2008), all those countries that suffer from weak enforcement of accounting regulations and have a relatively young, ineffective and weak accounting/auditing profession may make their compliance with IAS/IFRS in practice voluntary. Therefore, the concern is that the quality of accounting information provided in the financial statements of the companies may have changed after the adoption of IAS/IFRS.

Earnings management is considered to be one of the dimensions of accounting quality, and for this reason, the adoption of IAS/IFRS may have limited the use of creative accounting. Ownership concentration of companies *"contributes to the adoption of an aggressive tax-reducing strategy, since their ownership status does not appear to generate significant non-tax costs"* (Tzovas, 2006, p. 374). Additionally, as mentioned above Greek companies (along with other code-law countries) tend to report high levels of earnings management due to the fact that shareholders seek companies with less-volatile earnings. The transition to IAS/IFRS is expected to have reduced the use of creative accounting and, therefore, earnings management.

The information presented above explains why Greek banks base their lending decisions on the ability of each company to provide collateral (Filios, 1995) and not on the information provided in the annual reports and the financial statements of the company. Therefore, after the adoption of IAS/IFRS, Greek banks were able to rely on the information disclosed in the financial statements of the companies, with the latter able to acquire easier debt financing at better terms (e.g. lower interest rates). Additionally, as will be explained later (Section 5.5, Chapter 5), the introduction of specific standards is expected to have affected cost of debt.

Finally, the Greek market mostly consists of small and medium-sized companies. Greek companies raise their capital mainly through external debt financing (Bellas and Tzovas, 2008). Thus, in addition to the possibility that, after the IAS/IFRS adoption, debt financing became more readily available, the transition to IAS/IFRS was costly, and Greek companies may have borrowed at better terms, it is essential to examine whether the level of gearing increased after the adoption of IAS/IFRS in Greece, in relation to the possibility that the introduction of specific standards has affected gearing.

By examining the Greek accounting environment (Chapter 2), this thesis aims to shed light on the effects of the IAS/IFRS adoption on three dimensions (earnings management, cost of debt and gearing) by focusing on one country: Greece.

1.3 Research Questions

In the Greek accounting context, this thesis provides answers to the following research questions:

Q1. What have been the effects of the adoption of IAS/IFRS on earnings management in Greece?
Q2. What have been the effects of the adoption of IAS/IFRS on the cost of debt of Greek companies?
Q3. What have been the effects of the adoption of IAS/IFRS on gearing in Greece?

1.4 Contributions of the Study

1.4.1 The effects of IAS/IFRS adoption on earnings management

It has been argued that the adoption of stricter accounting practices can improve earnings quality (Barth *et al.*, 1999). Several researchers have focused on the effects of IAS/IFRS adoption on earnings management (Lang *et al.*, 2006; Ding *et al.*, 2007; Jeanjean and Stolowy, 2008; Iatridis and Rouvolis, 2010).

As will be discussed in Section 3.3, most studies report a positive relationship between IAS/IFRS adoption and earnings quality through decreased earnings management. According to Lang *et al.* (2006) the level of earnings management decreased after the adoption of IAS/IFRS in countries that experienced high levels of earnings management when reporting under their local GAAP. The research of Iatridis and Rouvolis (2010) also found that Greek companies experienced a decrease in the level of earnings management after IAS/IFRS adoption. Their dataset though included only two years (one year before and one year after the adoption of IAS/IFRS) compared to the present thesis which uses eight years.

Because there are high incentives for earnings management in the Greek market (Section 4.2.2), it is important to investigate further the use of earnings management in Greece before and after IAS/IFRS adoption.

Investor protection in Greece, which is a "code-law country", is low (La Porta *et al.*, 2000), and the use of earnings management is high (Leuz *et al.*, 2003). The present thesis adds to the literature by examining the relationship between IAS/IFRS adoption and higher earnings quality in Greece, by examining the use of earnings management before and after the adoption of IAS/IFRS. In contrast to most empirical papers examining this relationship, the present thesis applies the Modified Jones model (Dechow *et al.*, 1995; Becker *et al.*, 1998) and five alternative proxies (for the estimation of earnings management) to check whether the adoption of IAS/IFRS is negatively related to the use of earnings management.

1.4.2 The effects of IAS/IFRS adoption on cost of debt

As will be shown in Section 3.4, few papers examine the effects of IAS/IFRS adoption on debt markets. Briefly, the research of Wu and Zhang (2009) shows that a company's credit rating is related to the adoption of IAS/IFRS, meaning that the credit rating agencies do take positively the fact that a company has adopted the IAS/IFRS. The research of Kim *et al.* (2010), who investigated companies around the world, reveals that the borrowing terms are better when companies have adopted the IAS/IFRS, compared to the borrowing terms of companies that follow their local GAAP. Additionally, it has been found that cost of debt and the adoption of IAS/IFRS are negatively related in the UK (Florou and Kosi, 2009).

The above analysis reveals that the empirical outcomes regarding the effects of IAS/IFRS adoption on debt markets so far are limited; therefore, there cannot be a generalization of the results, and there is need for further investigation. Here lies the contribution of Chapter 5 of the present thesis: it provides evidence of the impact of IAS/IFRS adoption on cost of debt in the emerging market of Greece.

1.4.3 The effects of IAS/IFRS adoption on gearing

As will be discussed in Section 3.5, several studies that investigated the effects of IAS/IFRS adoption around the world reported an increase in the leverage ratios of the companies under investigation (Athianos *et al.*, 2005; Covrig *et al.*, 2007; Paananen, 2008; Iatridis and Rouvolis, 2010).

Although the abovementioned studies report increased leverage ratios after IAS/IFRS adoption, no evidence is given regarding the reasons for the increased leverage ratios. Therefore, Chapter 6 of the present thesis seeks to determine whether IAS/IFRS adoption and gearing are positively related. In other words, Chapter 6 contributes to the literature regarding the actual effect of the transition from Greek GAAP to IAS/IFRS on the gearing level of Greek companies. It uses both pooled and panel data techniques (fixed and random effects) with a view to examine whether the transition from Greek GAAP to IAS/IFRS increased the gearing level of Greek companies.

1.5 Research Methodology

The present thesis is a positivist empirical thesis. Empirical research is the use of quantitative methods in the process of observing and measuring phenomena. The result of this type of research can refer to numerical data that show the relationship between two or more variables. There are two major philosophies concerning research: positivism and interpretivist.

As noted by Watts (1995), the term "positivist research" was used by Friedman (1953) to differentiate research that aims at the explanation and prediction of phenomena from research that aims at the provision of a formula. The first case concerns positivist

research, that is, research about what will happen, whereas the second case, normative research, refers to research about what should happen (Ryan *et al.*, 2002).

The core of positivist research is to study the relationships of people involved in the provision of resources, as well as the outcome of the use of accounting in shaping these relations. Examples of such relations are relationships between the owners and the managers or between the managers and the firm's debt providers (Deegman and Unerman, 2006). On the basis of owner/manager contracting, Chapter 4 of the present thesis deals with incentives to manipulate accounting numbers (earnings management), and on the basis of manager/debt-provider contracting, Chapter 5 and Chapter 6 deal with agency theory and agency costs of debt.

Two research approaches can be taken: deduction and induction. Choosing the most suitable research approach is important because it enables researchers to decide on the research design, on the research strategy and how to deal with the possible constraints (Easterby-Smith *et al.*, 2002, cited in Saunders *et al.*, 2007). The deductive approach requires the existence of a theory that will be tested and, through the observation of outcomes, will be generalized, whereas the inductive approach works in the opposite way: the outcome is the formulation of a theory (Saunders *et al.*, 1997). The present thesis is based on the deductive approach. The present thesis could have used qualitative methods such as interviews with preparers or users of financial statements.

1.6 Data and Sources

The sample used in the present thesis contains companies that were listed on the Athens Stock Exchange (ASE) over 2001–2008. Out of the 264 companies that were, as of 2012, listed on the ASE, 253 were listed during the period under investigation (2001 to 2008). All companies (37) belonging to the insurance, financial and banking services sector were excluded. In addition, 35 further companies were excluded because of the non-availability of data. This means that the study sample consisted of 181 non-financial companies that had been continuously listed on the ASE during the period under investigation.

The data collected was for companies that had continuously published data for the eight years under investigation. Therefore, if a company entered ASE after 2001 and/or left ASE before 2008, then it was excluded from the sample under investigation. Consequently, 62 companies (financial and non-financial) were excluded.

The following procedure was used for the identification of the sample and the collection of data. Firstly, the OSIRIS database was used for the collection of information disclosed in the annual reports of the companies. Using research from the Union of Listed Companies (2009), all those companies that were not listed on the ASE throughout the period under investigation were excluded. Some of the data obtained using OSIRIS were missing, particularly for the years 2001, 2002 and 2003. For this reason, the websites of all the companies were checked and their annual reports were downloaded. As mentioned above, 35 companies were excluded because data could not be obtained through OSIRIS or through the companies' websites (their annual reports for the years missing were not available), which resulted in the sample of 181 firms.

1.7 Limitations of the Study

The limitations of the study can be summarized as follows.

Firstly, there is a limitation in the research design in that the selection of the sample of the Greek companies was not random. Secondly, compared to the datasets that studies that investigate large regions use, the dataset of the present thesis may be considered small. Thirdly, due to the fact that the accounting environment of Greece is singular, characterised by weak enforcement mechanisms and young and weak accounting profession, a generalization of the results to companies that are listed on other European or world stock exchanges may not be possible. Fourthly, the thesis leaves out specific accounting standards that have been issued for different companies such as state-owned companies. Lastly, as mentioned in section 1.5 the results provided are based on quantitative methods and do not take into consideration any qualitative evidence.

1.8 Organization of the Thesis

The remainder of the thesis is organised as follows:

- Chapter 2: "Literature Review: The Greek Accounting Environment" is divided into nine sections and explains the nature of the Greek accounting system. Specifically, it addresses the forces that helped in the creation of the accounting system in Greece, its legal system and how it is connected to the accounting system as well as the connection between the taxation and the accounting system. This chapter also provides information about the differences between the Greek GAAP and the IAS/IFRS.
- Chapter 3: "IAS/IFRS Adoption" is divided into six sections describing the effects of IAS/IFRS adoption around the world, including a section about Greece.
- Chapter 4: "The Effect of IAS/IFRS Adoption on Earnings Management" is divided into seven sections and addresses the issue of the use of creative accounting before and after the adoption of IAS/IFRS. Specifically, it investigates whether earnings management decreased after the adoption of IAS/IFRS.
- Chapter 5: "The Effect of IAS/IFRS Adoption on the Cost of Debt" is divided into ten sections and investigates whether Greek companies borrow at better terms after the adoption of IAS/IFRS. Specifically, it examines the relationship between IAS/IFRS adoption and the cost of debt in the Greek context.
- Chapter 6: "The Effect of IAS/IFRS Adoption on Gearing" is divided into eight sections and addresses whether gearing increased after the adoption of IAS/IFRS.
- Chapter 7: "Conclusions" is divided into seven sections and addresses the research objectives and questions, the findings and contributions of the study, the limitations of the study and recommendations for future research.

Chapter 2
The Greek Accounting Environment

2.1 Introduction

From its origins, the science of accountancy has been aimed at implementing accounting rules to ensure accounting standards are met by all entities. Therefore, accounting practices were developed on the basis of academic sources driven by the need to evaluate the financial performance of each entity. However, a unified accounting practice could not be achieved among entities because accountants' actions were influenced by their individual knowledge and inspiration (Daskalakis and Daskalakis, 2009).

The flourishing of industry at the beginning of the 19th century increased the need for a uniform and standardized accounting system.[1] This need was compounded by the demand for accumulation and presentation of uniform economic and statistical data. The first efforts for the revision and application of a uniform accounting system were made in many countries before World War I. Today, most countries around the world have their own accounting system. It has been widely reported that the accounting system of each country is affected by its socio-economic factors, which explains the differences among accounting systems around the world (Nair and Frank, 1981; Gray, 1988; Nobes, 1998).

2005 was a threshold year for the convergence of European accounting systems, as it constituted the first year of the adoption of IAS issued by the International Accounting Standards Board (IASB). These IAS were required to be adopted by all the listed companies of most European countries.

This chapter is an attempt to review the factors that have contributed to the development of the accounting system in Greece. Specifically, it attempts to identify, in line with Nobes (2006), the specific features of the Greek tradition that may have affected the formation of the country's accounting system and the key factors that may explain the differences between the accounting system of Greece and those of other countries.

[1] According to Nobes and Parker (2008, p. 25), an accounting system is "the set of financial reporting practices used by a particular company for an annual report".

As a result, this chapter is an effort to provide the necessary information so that the reader may understand the factors that have affected the Greek accounting system and that may have influenced the adoption of IAS/IFRS in Greece. The remainder of the chapter is structured as follows. Section 2.2 describes Greece as a country (location, origins of its gross domestic product (GDP)), Section 2.3 describes the development of its accounting regulations, Section 2.4 describes its institutions, Section 2.5 describes its external influences, Section 2.6 describes its accounting regulations before and after the adoption of IAS/IFRS, Section 2.7 describes the basic differences between Greek GAAP and IAS/IFRS, Section 2.8 describes the information disclosure required in Greece, and Section 2.9 sets out the conclusions of the chapter.

2.2 The Country

Greece is a country in south-eastern Europe, located on the southern end of the Balkan Peninsula. It borders Albania, the Republic of Macedonia, Bulgaria and Turkey, and in addition to its mainland it is made up of a number of islands off the Aegean and Ionian seas. As can be seen from the figures in Table 2.1, Greece is a country with 11.183 million people and a GDP per capita of €27,310.680.

Greece was under Turkish domination for almost 400 years (1453–1821). During the 1820s, Greeks were supported by the Great Powers of the west, which included France, Britain and Russia. As a result the new state, which was developed after the independence of Greece from Turkey, was influenced by these countries through the financial help provided to Greece. This, along with the idea that Greece's geographic position is strategic (Tsalavoutas, 2009), explains the continuous influence of the Great Powers on Greece even after the development of the new state. The same situation appeared to arise during the 20th century when Greece took part in the Balkan Wars (1912 and 1913) and World War I (1914–1918), which prevented the country from achieving stability in both the political and the economic sectors. In addition, World War II resulted in German domination until 1944, while later Greece was under a dictatorship for seven years (1967–1974).

	2010
Population	11.183 million
Land mass	131944.3543km2
Gross Domestic Product per capita, Current prices	US$27,310.680
Gross Domestic Product based on purchasing-power-parity (PPP) per capita GDP	US$27,668.285
Real GDP annual growth rate 2010	-3.50%
Inflation annual rate 2010	4.71%

Table 2.1: Country Profile

Sources: International Monetary Fund (IMF), Hellenic Republic: Ministry of Economy and Finance, Eurostat, 2012.

After World War II, Greek GDP increased by 7% per annum between 1950 and 1973. The Greek economy started to blossom quickly compared with other countries. Its GDP has been mostly based on services, particularly on the public sector and tourism, with the latter essential to the Greek economy, as can be seen from Table 2.2.

Year	*GDP (in millions €)*	*Touristic returns (in million €)*	*% of tourism in GDP*
2001	163.514	10.579,9	16,20%
2002	174.529	10.284,7	15,81%
2003	189.790	9.495,3	15,67%
2004	205.893	10.347,8	16,13%
2005	220.671	10.835,5	16,35%

Table 2.2: Effects of tourism in Greek economy

Source: SETE (Association of Greek tourism enterprises), 2009

As can be seen in Table 2.3, the GDP decreased from the annual rate of 4.3% in 2007 to −4.35% in 2010.

Year	2007	2008	2009	2010
GDP	4.3%	1%	- 2%	- 4.35%

Table 2.3: GDP in percentage
Source: Hellenic Statistical Authority, 2011

The exports of the country have followed an upward swing from €12.9 billion in 2001 to €16.6 billion in 2006 (Ministry of Economy and Finance, 2009).

Greek culture as well as Greek economics and politics continue to be affected by external influences (Ballas, 1998; Caramanis, 2005). Specifically, when Greece became a member of the EU in 1981, this contributed to the reinstatement of democracy after seven years of dictatorship (Ballas *et al.*, 1998). It has also been noted that there is a contrast resulting from the influences of the West and East, between *"a 'modernising' reform-minded, Westward-looking, pro-liberal culture and an 'underdog', Eastward-looking, anti-reform and pro-statist culture with 'nationalist and xenophobic overtones'"* (Caramanis, 2005, p. 202).

2.2.1 Greece and the economic crisis at the end of 2008

At the centre of the Eurozone debt crisis, we find Greece. With one of the highest budget deficits and the highest levels of public debt (International Monetary Fund [IMF], 2011), Greece has been the first member of the Eurozone to experience strong market pressure and to resort to the IMF and other member states for economic assistance.

In the 1990s, Greece controlled approximately 75% of its business assets and regulated some sectors of its economy. By 2008, it had reduced its stake to approximately 50%. Nonetheless, and according to the Organisation for Economic Cooperation and Development (OECD), a significant proportion of the private sector persists in

"suffering from complex and weighty regulations and the lack of a systematic and coherent approach to rule-making" (Nelson *et al.*, 2011, p. 2).

Approximately 10 years before the current economic crisis, a large percentage of rising government expenses was assigned to social benefits and wages in the public sector. In 2009, Greek state expenses represented 50% of the GDP, with 75% of (non-interest) public expenses constituting benefits and wages in the public sector. Furthermore, whereas Greek expenses in the public sector were the highest of the OECD countries (measured as a percentage of the total public expense), the quality and quantity of the services have not proven to be superior (Nelson *et al.*, 2011).

According to political analysts, the provision of public sector benefits and jobs has traditionally been regarded by Greek politicians as a way to grant favours, and hence to improve their electoral support. This tendency appears to have been useful for politically influential public sector unions to negotiate generous pension and wage agreements.

Another relevant factor explaining the complex tax code (which granted tax exemptions and income brackets to many occupations) and the high level of tax evasion is clientelism. According to Greek government officials, before the debt crisis only one-third of officially declared income was taxed by the state, at an average rate of approximately 30%. Profits from unrecorded economy were not included, although they may have accounted for over 30% of the official GDP according to some experts (Nelson *et al.*, 2011).

The deeply rooted political clientelism and tax evasion in Greece are seen by most analysts as indicative of the Greek society's increasing distrust towards their national institutions. In their Corruption Perception Index (2010) the organization Transparency International ranked Greece as the most corrupt country in the EU, with only Romania and Bulgaria being more corrupt.

While the Greek state was preparing to embrace the euro as its new currency in the 1990s, Greek borrowing costs dramatically dropped (Nelson *et al.*, 2011). Interest rates on 10-year bonds dropped by 18% (from 24.5% to 6.5%) from 1993 to 1999. Investors then believed that there would be a generalized union among the Eurozone countries.

The fact that countries had to meet certain policy targets (i.e. convergence criteria) in order to join the Eurozone reinforced this belief. Furthermore, the European Central Bank (ECB) was to conservatively manage the common monetary policy, and financial heavyweights such as France or Germany were to anchor it. Additionally, EU countries were to be bound to the Stability and Growth Pact, which limited public debt levels (to 60% of the GDP) and government deficits (to 3% of the GDP). Limits were made enforceable by means of penalties of up to 0.5% of the GDP (Council Regulation, EC, No. 1466/97 and No. 1467/97). All of these factors meant that investors trusted Greece alongside other Eurozone countries with traditionally weaker economic fundamentals compared with other countries such as Germany.

The pursuit to meet convergence criteria and the influx of capital did not result in any vital change in relation to how investments increased economic competitiveness or how Greece's economy was being managed. The Greek government had taken advantage of access to cheap credit to offset low tax revenues and pay for government expenses, and it had borrowed funds to pay for imports that were not offset by overseas exports. As a result, Greek trade and budget deficits increased in the 2000s, and the borrowed funds were not used to make productive investments that would increase economic competitiveness, generate new resources to repay the debt or create growth in the future (Nelson *et.al.*, 2011).

Instead, capital inflows were used to finance current consumption, which did not generate revenue streams with which to repay the debt. Investor confidence started to decrease as the Greek government continued to borrow from international capital markets to pay for its trade and budget deficits. If investors lost confidence in Greece's willingness or capacity to repay the debt, they would have charged the Greek government higher interest rates than it could afford, or even stopped lending to Greece completely. Greece's lack of access to borrowing funds made it difficult to repay debt as it became due (known as "rolling over debt"). This forced the Greek government to quickly implement austerity measures to avoid risking defaulting on its debt (Gros and Alcidi, 2011).

From 2009, investor confidence in the Greek government's capacity to pay for its debt dropped significantly. The 2008–2009 worldwide economic crisis and the resulting economic recession strained the public finances of many countries with advanced

economies, including Greece. Meanwhile, the Greek government was increasing its spending on public programmes such as unemployment benefits, and was experiencing weakened tax revenues. As a consequence, the reported public debt of Greece had risen from 106% of its GDP (in 2006) to 126% of its GDP (in 2009) (IMF, 2011).

To avoid the effect of the economic crisis on the Greek companies, the years 2009–2011 have not been included in the sample period of this study.

2.3 Development of Accounting Regulations

2.3.1 Development of the accounting system

Accounting standardization, under the form of Greek GAAP, of uniform operating rules and accounts, was established in Greece in 1980 under law 1041/1980, articles 47–49. This law anticipated that, through presidential decrees, within the following two years the content of Greek GAAP was to be defined and accounts were to be classified into 10 groups. Consequently, 1 January 1982 was the inception date of the voluntary implementation of Greek GAAP. Presidential decrees 409/1986 and 419/1986 demanded the mandatory preparation of balance sheets for SA (anonymous company) corporations, limited-liabilities companies and sleeping partnerships.

Under law 1882/1990, the companies that chose their auditors from the Greek Chartered Accountants' Institute for their book-keeping were obliged to put into practice Greek GAAP on 1 January 1990, whereas all those companies that were using third-class books,[2] under presidential decree 186/1992 were required to follow Greek GAAP on 1 January 1993. The mandatory implementation of the latter had to do only with the structure, terminology and content of first- and second-degree accounts. On 1 January 1997, presidential decree 134/1996 defined that all those companies that were keeping third-class books had to follow Greek GAAP even for the formation of third-degree accounts (Karagiorgos and Papadopoulos, 2003).

[2] Any company could keep third-class books, but it was mandatory for all those companies reporting revenues over €1,500,000, as well as for all limited and private limited companies. These are produced according to the double-entry book-keeping system. At the end of the period, the companies were required to produce a profit and loss account and a balance sheet. The other two categories are first-class books and second-class books. Companies that kept first-class books were obliged to report only their purchases, while companies that kept second-class books were obliged to report their revenues and expenses as well as an analysis of the depreciation and their fixed assets.

2.3.2 Accounting and auditing profession

In its early stages (1948–1952), auditing in Greece was a result of *"the implementation of the Economic Cooperation Agreement between Greece and the U.S.A. and the Marshall Plan"* (Ballas, 1998, p. 733). At this point, it should be mentioned that the Greek government used UK auditors for the audit of loan contracts as much in the private sector as in the public sector, because at that time there were no Greek Public Accountants as there were in the USA or the UK; therefore, it was agreed that British Chartered Accountants should be employed by the Greek government.

Before and since 1957, the initiation year of the operation of the Greek Body of Sworn-in Accountants (SOL, Soma Orkoton Logiston), and up until today, the organization and operation of the auditing profession in Greece has passed through three stages:

1) The period before 1957, during which there was no organized auditing profession, which resulted in purely symbolic and superficial auditing.
2) The period between 1957 and 1992, which was the period of the creation of SOL and its nomination to a public law body.
3) The period after 1993 through to today, during which the previous system of operation of SOL was changed and auditing companies were created.

After World War II and the liberation of Greece from German occupancy, the Greek government used British Accountants, who were employed by the British Economic Mission, as advisors *"on the costing of various products for price control purposes"* (Ballas, 1998, p. 719). Specifically, until 1957, the auditing of limited companies was merely symbolic; auditors were not professionals, and the law did not require any specific qualifications. As a result, anyone could act as an auditor, regardless of his/her educational background and profession. There was an association between the company and the auditor, because the latter was designated and paid by the business administration of the company.

This precarious situation had to be amended, and so in 1955, SOL was created. Its operation started in 1956; at the beginning, it undertook the auditing of large companies, and later, the auditing of small to medium-sized companies as well. During the first years of its operation, and because of the work of English Chartered Accountants,

auditing standards were issued similar to those in the UK. In 1979, there was a revision of the standards for their reconciliation to Greek legislation; two further revisions took place in 1988 and 1989.

These events reveal the weakness of the accounting and auditing profession (Baralexis, 2004). The creation of the profession was purely based on the Greek government with a view to providing auditing services to help the country avoid corrupt business practices and to increase its tax revenue (Ballas *et al.*, 1998).

Baralexis (2004) argues that the accounting and auditing profession was not effective until the period after 1993. Until then, the auditors were controlled by the managers or the owners of the companies, which led to audit reports being ignored (Ballas, 1994).

In the period after 1993, law 1969/1991 anticipated the alteration of the organization and operation of the auditing profession as well as the promulgation of a presidential decree that would specify the conditions of the proper organization and operation of the auditing profession according to the Eighth Directive of the EU (84/253/EEC). Presidential decree 226/1992 defined, *inter alia*, the creation of the Greek Body of Sworn-in Auditors–Accountants and required all professional auditors to be registered in a specific record, known as the public register, and acknowledged auditing companies to be included in a specific part of this public register (Caramanis, 2005).

From 1993 onwards, private audit companies and international companies were able to operate in Greece (Caramanis, 2002). Competition within the audit companies and the audit market as a whole have grown (Leventis *et al.*, 2005). As of 2011, 23 auditing companies were in operation in Greece (Official site of Greek Chartered Accountants' Institute).

2.4 Institutions

2.4.1 Political and economic system

The constitution of Greece is a Parliamentary Republic. Its political and economic system is based mostly on small and medium-sized businesses belonging to the private sector; however, there are also some large publicly owned companies that affect the

Greek political and economic system. Bureaucracy is a common characteristic of the Greek economy; according to the World Bank, in 2007, if an individual wanted to start a new business in Greece, he/she had to go through 15 procedures, spend 38 days of his/her life on average to start the business and pay five times more than the average of OECD countries (Christidis, 2007). As of 2012, an individual would be required to go through 10 procedures, spend 10 days of his/her life to start the business and pay just under twice the average of OECD countries (World Bank, 2012a). Therefore, although the situation has improved, if these rates are compared with those reported for the UK (six procedures, eight days and less payment than the OECD average, respectively) it can be seen that bureaucracy remains one of the characteristics of the Greek economy (World Bank, 2012b). Bureaucracy in Greece works negatively in terms of attracting foreign investment, a fact that is depicted by the low percentage of foreign investment in terms of GDP (13%) compared with that of the EU (32%). In research by the World Bank (2009), Greece was ranked 133rd among 181 countries based on the ease of starting a business.

In the 1990s, the state in Greece owned almost all utilities. However, the need for new sources of capital led the government to sell shares of these enterprises, transforming them into private companies. To gain competitive advantage, Greece had to attract investors that could provide cost-effective finance to the country and who would be willing to invest in Greece and Greek companies. This process of privatization influenced accounting regulations in Greece in such a way that all the companies that became private were required to provide investors with information that had to be included in the published annual reports.

Since 2000, Greece has achieved low levels of growth compared with other European countries, and this has led Greece into a stage of stagnation. In 2007–2008 Greece was classified as the 65th most competitive country among 133 countries, while in 2008–2009 it fell one place in the ranking among 134 countries (World Economic Forum, 2008). During 2010–2011, Greece fell further in the international classification of competiveness and was ranked the 90th most competitive country among 142 countries (World Economic Forum, 2011).

2.4.2 Legal system

In Greece, as in many other countries, business relationships are specified by the Commercial Code. The basic origin of the Commercial Code is Commercial Law (Royal Decree 19.4/1.5.1835), which is based on the French *Code de Commerce* of 1807. French Commercial Law was introduced in Greece before the Greek Revolution of 1821, but it took effect after the first Greek revolutionary constitution of 1822.

In 1980, a General Accounting Plan based on the French *Plan Comptable* was adopted with a view to ease the entrance of Greece into the EU. Although the General Accounting Plan was adopted, the Greek state managed to retain significant control of the country's accounting and taxation regulations (Ballas *et al.*, 1998).

Ballas *et al.* (1998) argue that Greece is characterized by political patronage, meaning that politicians attempt to reward and satisfy individuals who voted for them, while ignoring the public interest. For this reason, Greek citizens do not trust the system, and many attempt to take advantage of it, therefore making Greece a *"low trust society"* (Tsalavoutas, 2009, p. 28) that needs rules to enable the situation to be controlled and changed. According to Ballas *et al.* (1998), the Greek system is characterized by "formalism", which refers to the use of specified forms that pay no attention to inner significance.

2.4.3 Taxation system

Taxation pressure, which is the public revenue from taxes and social security, was below the OECD average in Greece until the mid-1980s (Bronchi, 2002). The Greek government decided in the 1990s that the tax system should be reformed, and since then the improvement of tax administration has been an important aim of governmental policy. However, many of the changes *"have led to a complex and non-transparent system, characterized by narrow bases and fairly high rates"* (Bronchi, 2002, p. 2). Therefore, many Greek taxpayers do not trust the tax authorities.

In the early 1990s, the Greek government sought to ease the availability of public sector information and services to the Greek public (Avgerou, 2002). The first effort in that direction was made in 1997 with the creation of a tax information system named TAXIS

(Bronchi, 2002). It was expected that the system would lead to *"directly accessible fiscal and financial information, uniform application of fiscal legislation, reduction in administration costs, accurate auditing, reliable and integral capture of primary data and improved revenue projections"* (Bronchi, 2002, p. 10). Research by Terpsiadou and Economides (2009) shows that most of the system's users believed that bureaucracy decreased with the use of TAXIS and that their work was much improved. Although the system appeared to satisfy users, they viewed it as being slow and complained about the lack of provision of good guidance for its use.

In Greece, taxation and financial reporting are linked through presidential decree 186/9222 (Tzovas, 2006). As mentioned above, Greek taxpayers are reluctant to pay high taxes, and this reluctance leads to the use of creative accounting (e.g. earnings management) and tax avoidance (Baralexis, 2004). Tax avoidance practices in Greece include the late recognition of provisions because these are taxable (Vlachos, 2001). Meanwhile, Greece has one of the highest levels of earnings management of any country (Leuz *et al.*, 2003).

Greek companies are mostly small and medium-sized (the majority is not listed in the ASE) with high ownership concentration (Tsalavoutas, 2009). In most cases, owners are also managers of the companies they own, which means that financial statements are not necessary as a means of communication between the managers and the owners of the company (Tzovas, 2006). Moreover, ownership concentration *"contributes to the adoption of an aggressive tax-reducing strategy, since their ownership status does not appear to generate significant non-tax costs"* (Tzovas, 2006, p. 374). Additionally, Spathis and Georgakopoulou (2007) argue that the various groups of stakeholders play an important role in the Greek accounting system because they seek companies with less-volatile earnings; thus, Greek companies (along with other code-law countries) tend to report higher levels of earnings smoothing.

The information presented in this section may explain why Greek banks base their lending decisions on the ability of each company to provide collateral (Filios, 1995) rather than on the information provided in the annual reports and the financial statements of the company.

Here lies the basis of the contributions of the present thesis. The transition to IAS/IFRS is expected to have reduced the use of creative accounting and, therefore, earnings

management (Section 4.3). Moreover, after the adoption of IAS/IFRS and in addition to the introduction of specific accounting standards that may have affected cost of debt (Section 5.5) and gearing (Section 6.2), Greek banks should have been able to rely on the information disclosed in the financial statements of companies, with the borrower being able to borrow at better terms (e.g. lower interest rates).

2.4.4 Corporate financing system

The ASE was set up on 30 September 1876 under the government of Alexandros Koumoundouros. At that time there was the necessity for an appropriate location for transactions among entrepreneurs; before its creation, entrepreneurs gathered in cafes for their transactions (Anon, Ilios Encyclopaedia, 1955).

The ASE is supervised by the Minister of Economy and Finance and ruled by an administrative committee with seven members; three are voted by stock market offices, one by listed companies, one by the employees of the stock exchange, one by investing organizations and one by the Minister of Economy and Finance (Georgiadis, 1990).

The 1990s was a significant decade for the growth of the ASE. In 1996 and in 1999 there were 218 and 278 companies listed on the ASE, respectively (Vlachos, 2001).

Since 2000, the ASE has been classified as an emerging market, but in 2006, Greece was classified as one of the countries in the "watch list", which means that it may be reclassified as an advanced emerging market. Also in 2006, all the companies that were listed on the ASE were separated into sectors that follow the classification of the sectors in other stock exchanges such as the London Stock Exchange and the New York Stock Exchange; therefore, it was easier to compare the Greek sectors with the sectors of other stock exchanges.

At the end of 2001, the ASE General Index closed at 2,591.56, while at the end of 2002 and 2003 it was at 1,748.42 and 2,263.58, respectively. In the two following years (2004 and 2005) the ASE saw an increase in the volume of transactions. In 2007, the ASE General Index closed at 5,178.8 on 31 December 2007, indicating an increase of 17.9% on the amount of 4,394.1 on 31 December 2006 (Hellenic Exchanges Group, 2008). The average value of transactions on a daily basis in the ASE cash market in

2007 was €481 million, indicating a 40.3% increase on the €343 million recorded in 2006. On 31 December 2007, the ASE cash market reported a total capitalization in the vicinity of €195.5 billion compared to €157.9 billion on 31 December 2006, indicating an increase of 23.8%. The volume of transactions increased from 28,741 to 34,833 from 2006 to 2007, posting an increase of 21.2%. In 2008, the ASE General Index decreased to 3,209.26. During August 2011, the ASE General Index fell below 1000 points to 998.24 (I Kathimerini, 08/08/11). As of 2012, there were 264 listed companies on the ASE, of which 49 were large and 141 were small and medium-sized.

As mentioned above, the ASE was supervised by the Minister of Economy and Finance. Law 3152/2003 required the supervision of the ASE by the Hellenic Capital Market Commission (HCMC), which also provides professional qualifications to investment analysts and consultants, fund managers and share traders (Tsalavoutas, 2009). Despite the fact that the Ministry of Economy and Finance still influences it, the HCMC operates as an independent organization.

The HCMC is responsible for the identification of non-compliance listed companies. It monitors whether the companies listed on the ASE comply with measurement and disclosure requirements. When the HCMC identifies a company that has not complied with the requirements, clarification is asked for. If necessary, the HCMC asks the company to make a public announcement that includes information regarding the non-compliance issues identified and possible restatements. When the HCMC identifies companies that are serious non-compliers, it imposes fines or it may suspend a company for a specific period. In some cases the company may be delisted.

2.4.5 Corporate governance

The Committee on Corporate Governance introduced in October 1999 a White Paper entitled "Principles of Corporate Governance in Greece: Recommendations for its Competitive Transformation". The principles and best-practice rules incorporated were closely modelled according to OECD Principles on Corporate Governance (OECD, 1999). Fundamental corporate governance obligations were put in place by two new laws that were released in 2002 (3016/2002 and 3090/2002). According to these laws, companies listed on the Greek stock exchange are obligated to follow the corporate

governance code. Law 3016/2002 requires the existence of non-executive members – two of which should be independent – on the directors' board (Iliokaftos, 2005).

Grant Thornton and the Athens University of Economics and Business (Grant Thornton and AUEB, 2005) found that companies that were listed on the ASE were not following the legislation regarding corporate governance in the way they should have: although they appeared to follow it, they were not complying with its substance. Their survey revealed that some disclosures were not adequate, the non-executive members were not independent from the executive members of the board, and there were directors who were also working for affiliated companies. A year later, Grant Thornton and AUEB (2006) published a similar survey revealing that, although progress was being made, Greek companies needed to improve their policies and the independence of executive and non-executive members of the board.

Lastly, Florou and Galarniotis (2007) developed a corporate governance rating for companies listed on the ASE by using three levels as benchmarks: *"(a) the minimum requirements under Greek regulation (lower level); (b) the incremental recommendations of the Greek code (middle level); and (c) the additional international best practices, prescribed by the UK Combined Code (higher level)"* (Florou and Galarniotis, 2007, p. 979). Florou and Galarniotis reported an average corporate governance of 65.5% at the lower level, whereas the average reduced to 44% when taking into consideration the middle and higher levels.

2.5 External Influences

In 1981 Greece became the 10th country-member of the EU. The need for compliance with all the other countries of the EU in terms of growth rate, production, investments and so on influenced the Greek economy. The demand for uniform adoption of IAS/IFRS in 2005 by all the European listed companies led Greece to the obligatory adoption of these standards. Most companies, since 2005, have produced their annual reports in Greek and English, for the facilitation of capital transfer. Greece is a non-English-speaking country; thus, producing an annual report in English may enable investors to better understand the financial statements and therefore attract more shareholders (Jeanjean *et al.*, 2008).

2.6 Accounting Regulations

2.6.1 Accounting regulations under Greek GAAP

In 1980, the Greek General Accounting Principles were defined by decree-law 1123 (1123/1980). According to clause 48, paragraph 1 of law 1041 (1041/1980) *"The Greek General Accounting Principles constitutes a taxonomy of accounting principles, through which is intended the standardization of used accounts, their compound operation, the appraisal of companies' assets, the editing and publication of balance-sheets, the profit and loss accounts, as well the planning of accountancy in a national scale"* (Chevas and Papadaki, 2004, p. 2).

The Greek GAAP are divided into 10 groups:

- Groups 1–8 cover general accounting. Groups 1–5 include all the accounts of balance sheet, meaning all those accounts that at the end of each period have balances – debit or credit accounts – that compose the balance sheet. More specifically, Groups 1–3 include all the assets of each company, and Groups 4–5 include all liabilities.
- Groups 6–8 include the profit and loss accounts, which at the end of each period are closed off, after the transfer of balances, first to trading accounts and profit and loss accounts, and second to the balance sheet. More specifically, Group 6 includes the accounts of operational expenses, and Group 7 includes the accounts of operational incomings. In Group 8 are included the accounts of general exploitation, of extraordinary items and the profit and loss accounts,
- Group 9 covers operational accounting and
- Group 0 covers the need for contra accounting (Sakkelis, 2007).

Specifically, Group 1 includes all the assets of an entity that will stay under the entity's ownership, the trade receivables and the expenses for depreciation.

Group 2 monitors the entity's inventories, which are considered to be commodities that belong to an entity and

i. are intended to be sold;
ii. are still under production and are planned to be sold when they take the form of ready goods;

iii. will be used for the production of other goods or the delivery of services;
iv. will be used for the appropriate performance of fixed assets;
v. will be used for the package of goods that are planned to be sold.

Short-term receivables and funds of an entity are monitored in Group 3. Short-term receivables are considered to be all those receivables that by the composition of the balance sheet are receivable within the subsequent use. According to this definition each receivable whose repayment date expires within the subsequent period is reported in Group 3.

Group 4 includes each company's ownership capital, provisions and long-term liabilities, and Group 5 monitors the short-term liabilities, which are considered to be all those liabilities whose maturity date is before or on the same date of the end of the period.

In Group 6 the operational expenses are represented as well as the annual burdens for depreciations and provisions that are embodied in the operational cost. If there are no data about nature of these expenses, they are reported in Group 6, and during the period or at the end date of the balance sheet, they are transferred to the accounts to which they belong.

Group 7 monitors operational incomings as well as any income that occurs by the sale of goods or services that constitute the turnover, government grants and sequential incomings. The balances of Group 7, by the end of each period, are transferred to the credit account of Group 8. There is a possibility that the account of incomings includes expenses of future periods, either because they have been already collected or because they do not include worked and ought-to-be-paid incomings that will be paid in the next period. In this case, before their transfer to Group 8, they are reckoned in such a way that their balances depict the exact level of the worked and ought-to-be-paid incomings.

Group 8 includes profit and loss accounts, in gross and net amounts, as well as the accumulation accounts of all those gross profits/losses that have not been specified. In the same group are included the accounts of extraordinary items, profits and losses of previous years and extraordinary provisions.

The following section describes the transition from Greek GAAP to IAS/IFRS. It explains why Greek companies adopted IAS/IFRS in 2005 and not in 2003 as was initially required, and explains why most Greek companies produced no reconciliation statements.

2.6.2 The transition to IAS/IFRS

Although law 2992/2002 suggested that all Greek companies listed on the ASE should adopt IAS/IFRS from 1 January 2003, the fact that the companies proved to be unprepared to adopt them prevented this law from coming into force (Floropoulos, 2006). Therefore, a new law (3229/2004) required all the listed companies to make the transition to IAS/IFRS by 1 January 2005.

Presidential decree 186/1992 defines a fiscal year as a full year of 12 months that should end either on 30 June or on 31 December. Under IAS/IFRS, the date for the official publication of financial statements for a company was two months after the year end; however, Greek companies found it difficult to meet this target, and therefore, the HCMC decided that the publication date should be extended for one more month. Consequently, the first annual reports following IAS/IFRS were published in March 2006 (for all those companies whose year end was 31 December).

The fact that Greek companies as well as their accountants were not ready to convert to IAS/IFRS from Greek GAAP complicated the transition (Floropoulos, 2006). Half of Greek companies expected that the transition would have a positive effect on their financial position. However, the results of a survey by Grant Thornton and the AUEB (2003) revealed that one-third of the companies surveyed admitted that they had not acquired the appropriate experts, and less than one-fifth were prepared for the transition.

The IAS/IFRS required the disclosure of information that was not mandatory under Greek GAAP, enabling the users of annual reports to have access to the information available. Under Greek GAAP, a section of notes followed the financial statements within an annual report; these notes had a specific format, but were not always available to the public. The disclosure of notes within an annual report was not mandatory for all the companies; it was mandatory only for companies required to disclose them by the existing legislation each period. Therefore, companies were not required to disclose a

thorough set of notes that would follow the financial statements, as opposed to the requirements of IAS/IFRS, which in turn prevented investors from having access to all the information needed regarding the policies that were followed by Greek companies.

The first financial statements published under the IAS/IFRS included reconciliation statements that helped users to understand the adjustments resulting from the adoption of the IAS/IFRS. Before the mandatory transition to IAS/IFRS, only a minority of Greek companies had disclosed reconciliation statements within their annual reports; the majority of companies were unprepared and therefore produced no reconciliation statements (Floropoulos, 2006).

2.7 Basic Differences between Greek GAAP and IAS/IFRS as of Their Mandatory Adoption in 2005

The following sections highlight some basic differences between Greek GAAP and IAS/IFRS that may have affected the variables used in the present thesis. More specifically, the reclassification of certain variables or the requirement of obligatory disclosure of a cash flow statement (Section 2.7.4) may have affected the variables used as dependent or control variables in the three empirical chapters (Chapters 4, 5 and 6).

2.7.1 Depreciation of tangible assets

There are important differences between the Greek GAAP and the IAS/IFRS. One basic difference is the depreciation of tangible assets. According to the Greek GAAP, depreciation is the distribution in time of the depreciation value of each tangible asset – calculated on the basis of its useful life – and its allocation in each fiscal year (Leontaris, 2004). The depreciations of each financial year are charged to operating costs, or directly to profit and loss accounts when there are depreciations that cannot be incorporated into the operating costs. The amount of annual depreciation represents the decrease of a fixed asset's value, which applies upon its use and lapse of time. The depreciation of fixed assets is allocated in each accounting period, during its useful life, in a uniform way, and the method used for its calculation is straight-line depreciation. The Greek GAAP define that the annual depreciation is determined by the legislation's rate for each category of tangible assets; these legislation rates cover the physical

deterioration as well as the economic obsolescence of each tangible asset. All the depreciations being held in a financial period are ascribed in this period, with a debit of account number 66 “Fixed assets depreciation embodied in operating cost”, or account number 85 “Fixed assets depreciation non-embodied in operating cost” and a credit of contra accounts (Leontaris, 2004). In contrast, under IAS/IFRS, the methods used for calculation of depreciation are straight-line depreciation and the reducing balance method.

The different requirements of the depreciation methods result in different reported values in depreciation. Therefore, differences in the reported earnings may be related to earnings management (see Chapter 4).

2.7.2 Inventory valuation

Another important difference between Greek GAAP and IAS/IFRS is the inventories valuation. Greek GAAP follow five methods for the valuation of inventories, whereas IAS/IFRS use only two. The five methods used by Greek GAAP are First In First Out (FIFO), Weighted Average, Last In First Out (LIFO), Unit Cost and Base Inventory, and under IAS/IFRS, FIFO and Weighted Average are used for the inventories valuation (Kakavoulis, 2006).

Under Greek GAAP, inventories are reported in Group 2; these inventories come from stocktaking, purchases, exchanges or foundations. Each entity is obliged to carry out stocktaking at least once per financial period, at the end of this period. According to FIFO, the first importation is exported first, and inventories come from the last purchases and are evaluated at their purchase value. However, with the Weighted Average method, inventories arise after the calculation of all the inventories at the beginning of the period increased by the purchases during the period at their acquisition cost. With LIFO, the last importation is exported first, and inventories come from the oldest purchases, whereas the Unit Cost method requires the calculation of the average balance cost after each importation. Finally, the fifth method used by Greek GAAP is Base Inventory, according to which the inventories of each company are separated into two groups at the end of the period. The first group corresponds to the basic inventory that represents the minimum amount necessary for the proper operation of the entity, and the second is designated for the service of future need for sales. The basic

inventory is evaluated at its initial acquisition cost, while the "over-inventory" (second group) is calculated based on one of the other four methods mentioned above.

On the other hand, IAS/IFRS require the use of two of the abovementioned methods for the valuation of tangible assets: FIFO and Weighted Average. *"The LIFO formula, which had been allowed prior to the 2003 revision of IAS 2, is no longer allowed"* (IAS PLUS, Deloitte, 2012c). Additionally, IAS 2 requires the recognition of inventory changes, in contrast to the Greek GAAP, which require the disclosure of inventory changes in the notes but not their recognition.

2.7.3 Amortization of goodwill

The amortization of goodwill is also different under Greek GAAP and IAS/IFRS. According to Greek GAAP, account 16.00 "Goodwill" monitors the goodwill that comes from the purchase or merger of a whole economic unit and is equal to the difference between the real value and the book value of the entity (Kakavoulis, 2006). The goodwill of an entity is based basically on its ability to achieve high profits due to its reputation, its extended credit, its high level of employers (scientific constitution, experience), its prestige and the effectiveness of its administrative and executor mechanism. Under Greek GAAP, goodwill is amortized entirely or partly – in equal amounts – no longer than every five years. In contrast, under IAS/IFRS, the amortization of goodwill is forbidden, and there must be testing for impairment every one year or more frequently.

The different requirements in the amortization of goodwill lead to differences in the reported earnings of the Greek companies.

2.7.4 Cash flow statement

The presentation of a cash flow statement is not obligatory under Greek GAAP, but when an entity decides to present a cash flow statement it must use the "indirect" method. The indirect method uses net income as a starting point, makes adjustments for all transactions for non-cash items, then adjusts for all cash-based transactions. An increase in an asset account is deducted from net income, and an increase in a liability account is added back to net income (Epstein and Jermakowicz, 2007). Specifically, it

starts with net income, and then expenses not involving cash outflows are added back, while cash outflows not recorded as expenses and revenues not involving cash inflows are subtracted. The amount derived is the cash flow from operating activities; to this amount, cash inflows from investing activities and financing activities are added, and related cash outflows are subtracted.

In contrast, IAS/IFRS require the mandatory publication of a cash flow statement and the use either of the indirect or the direct method. The direct method starts with cash provided by sales, then operating expenses are subtracted, and the amount derived is the net cash flow from operating activities; again, to this amount, cash inflows from investing activities and financing activities are added, and related cash outflows are subtracted.

The fact that the presentation of a cash flow statement is not obligatory under Greek GAAP enables Greek companies to use creative accounting practices to present the desired level of earnings. This increased disclosure requirement is expected to affect earnings.

2.7.5 Revaluation of fixed tangible assets and deferred taxation

Another difference between Greek GAAP and IAS/IFRS is the revaluation of fixed tangible assets. Under Greek GAAP, their revaluation is considered in terms of ownership of assets, whereas under IAS/IFRS they are considered part of income or expenses: the increase (decrease) in depreciation arising from the revaluation of fixed assets is devolved to depreciation expenses (income). Therefore, the reported earnings of Greek companies are expected to be affected by the revaluation of fixed tangible assets.

The Greek GAAP include no statement about deferred taxation, whereas IAS/IFRS require that *"deferred taxation should be recognized as income or expense and included in profit or loss for the period"* (IAS PLUS, Deloitte, 2012a). Again, the different requirements in terms of deferred taxation are expected to affect the reported earnings of Greek companies.

2.7.6 Foreign currency translation

Foreign currency translation is different under Greek GAAP and IAS/IFRS. It is monitored under account 16.15 "Exchange differences due to credit and loans for the acquisition of fixed assets" and is considered as an intangible asset, amortized during the period of loan, whereas IAS/IFRS consider it as an increase in the cost of asset, amortized during its useful life.

Although Greece has adopted the IAS/IFRS, they are followed for the composition of financial statements, whereas the Greek GAAP are followed for tax computation and payment purposes.

2.8 Information Disclosure

According to presidential decree 348/1985, the annual reports of Greek companies should be structured as follows:

a. Front page including, among other details, the name of the company and the reason for the issued report.
b. A blank page.
c. A page structured as the front page.
d. Table of contents.
e. Narrative information (e.g. subscription summary, report summary, company information).
f. Appendix with certified accounts.

Until 2001, *"only large companies and particularly banks were in reality issuing annual reports"* (Mavridis, 2002, p. 5). Research by Lazarides *et al.* (2009) shows that Greek companies disclosed only information that was required by law (mandatory information). In other words, no voluntary information was disclosed, particularly information concerning decision-making processes and the valuation of management teams.

2.9 Conclusion

This chapter attempted to highlight the factors that have influenced the Greek accounting environment. Specifically, as explained in Section 2.4.2, Greece is characterized by "formalism" and "patronage" which have resulted in weak mechanisms and inefficiencies and an unwillingness by the public to follow the accounting rules.

This chapter also revealed that Greece is a low-trust society with high levels of tax avoidance (Sections 2.4.2 and 2.4.3). Greek companies do not comply fully with the legislation regarding the corporate governance they should follow, and they tend to smooth their earnings. This is because the various groups of stakeholders that play important roles in the Greek accounting system seek companies with less-volatile earnings. For this reason, Greek banks based their lending decisions on the ability of each company to provide collateral, and not on the information provided in the company's annual reports.

Greece constitutes an interesting case study because the IAS/IFRS adoption obligated Greek companies to disclose more information than they were disclosing under Greek GAAP, and there are significant differences in measurement between the two systems. This thesis seeks to explore the effects of IAS/IFRS adoption in Greece. Specifically, it investigates whether the IAS/IFRS adoption lowered earnings management in Greece (Chapter 4), whether Greek companies' cost of debt changed after IAS/IFRS adoption (Chapter 5) and, finally, whether the level of gearing of Greek companies increased after the adoption of IAS/IFRS (Chapter 6).

Chapter 3
IAS/IFRS Adoption

3.1 Introduction

"International uniformity was a central theme of the first Congress of Accountants in 1904" (Ball, 2005, p.3-4). A century later, international organizations are still working on the same issue. The incentive for the harmonization of accounting standards is the creation of a free market of investments (Leuz and Verrecchia, 2000) and should also help investors to undertake certain decisions. Specifically, the adoption of a common set of accounting standards is expected to lead to a reduction of costs and uncertainty and to enable comparability among any parent company and its subsidiaries as well as among entities in the same industry but in different countries. Miles and Nobes (1998) agree that a common set of rules across all countries could reduce the risk of missed investment opportunities. This chapter seeks to explore the findings of various published studies on the effects of the IAS/IFRS in Greece. It also seeks to explain why the present thesis has focused on the three research questions mentioned in Chapter 1.

Several organizations around the world, such as regional accounting bodies, wider groupings of accountancy bodies and interested persons, intergovernmental organizations and organizations of securities markets and analysts, have attempted to help the convergence of accounting standards (Roberts *et al.*, 2005).

One of these organizations is the International Accounting Standards Committee (IASC), which was created in 1973 with the main purposes of preparing and publishing the IAS and working towards the convergence of accounting principles and procedures around the world. The first standards issued by IASC dealt with matters of presentation and disclosure (Nair and Frank, 1981). In 1989, an exposure draft, E 32, was issued by IASC discussing the various methods of treatment that existed at that time. The successor of IASC is the IASB, which is an organization based in London that publishes the IAS. It is an independent standard-setting board, appointed and overseen by a geographically and professionally diverse group of Trustees of the IASC Foundation who are accountable to the public interest. It is supported by an external advisory council (Standards Advisory Council, SAC) and an interpretations committee (International Financial Reporting Interpretations Committee, IFRIC) to offer guidance

where divergence in practice occurs. The Trustees appoint the IASB's 15 board members (as of February 2012), who are from various countries and have a variety of functional backgrounds. Its priority is to create appropriate conditions for the effective market of capital, through the improvement of the comparability of a single market, so as to enhance competition and facilitate the circulation of capital. In 2001, the European Commission decided that it was important for all listed companies to adopt IFRS with effect from January 2005. Specifically, all listed companies were expected to adopt by 1 January 2005 all the standards that had been issued before March 2004. All those issued after March 2004 were to be adopted by 2006 or later. This was the "stable platform" of 21 months with no further changes (Roberts *et al.*, 2005).

The main concern was whether the benefits of the increased capital cash flows would outweigh the cost of the adoption of IAS (Armstrong *et al.*, 2008). The mandatory adoption of IAS/IFRS in 2005 resulted in the formation of two differing aspects and sets of supporters: those who believe that the adoption had positive effects on several concepts and groups (such as the cost of capital and investors, respectively), and those who believe that it had negative effects.

The remainder of this chapter looks at previous research and is structured as follows. Section 3.2 focuses on the effects of IAS/IFRS adoption in the Greek market, Section 3.3 investigates the effects of IAS/IFRS adoption on earnings management, Section 3.4 refers to IAS/IFRS adoption and debt financing, Section 3.5 describes the relationship between IAS/IFRS adoption and gearing, and Section 3.6 concludes.

3.2 Prior Research on IAS/IFRS Adoption in Greece

Few studies have attempted to examine the transition from Greek GAAP to IAS/IFRS (Athianos *et al.*, 2005; Bellas *et al.*, 2007; Floros, 2007; Kotsios-Kontokotsios and Negkakis, 2007; Caramanis and Papadakis, 2008; Georgakopoulou *et al.*, 2010; Iatridis and Rouvolis, 2010; Tsalavoutas and Evans, 2010; Iatridis and Dalla, 2011). Most of them focus on the effects on financial statements and the value relevance of book value and net equity.

Floropoulos (2003) used questionnaires to determine whether Greek companies were ready to make the transition to IAS/IFRS. He found that the companies that were more ready to comply with IAS/IFRS were either large or medium-sized or were, at that time, listed on the ASE. In later research, Floropoulos (2006) found that Greek companies listed on the ASE tended to comply with IAS/IFRS earlier than those companies that were not listed on the ASE, and in accordance with his previous research, large and medium-sized entities met the terms of IAS/IFRS to a greater extent.

Grant Thornton and the AUEB (2003) also used questionnaires to examine whether Greek companies were ready to comply with IAS/IFRS by 2005, which was the year for the mandatory adoption of IAS/IFRS. Their main finding was that most Greek companies had taken small steps in implementing the IAS/IFRS at that time. Another study that investigated the readiness of Greek companies to adopt IAS/IFRS was undertaken by Floropoulos and Moschidis (2004), who used as their sample small and medium-sized companies. Their findings were in line with those of Floropoulos (2003) regarding companies that were more ready to apply IAS/IFRS: Floropoulos and Moschidis found that large companies that were listed on the ASE and had increased field activity were more likely to adopt IAS/IFRS.

Spathis and Georgakopoulou (2007) tried to explore the factors that could affect the compliance of Greek companies with IAS/IFRS as well as any constraints that could appear. More specifically, they argue that although the compliance between the two accounting systems (Greek GAAP and IAS/IFRS) is difficult, it can be achieved through training courses and that the Greek GAAP needs to be changed for the achievement of the desired level of convergence with IAS/IFRS. Additionally, '*as long as companies are required to apply two different accounting systems in consolidated and in individual accounts, inefficiencies will continue to arise as a result of extra costs and complexity, thus creating barriers for corporate development and impairing competition between companies'* (Spathis and Georgakopoulou, 2007, pp. 61).

Caramanis and Papadakis (2008) also tried to identify constraints that would affect the compliance, identifying at the same time basic differences between Greek GAAP and IAS/IFRS. According to them, the constraints include the unformed harmonization between institutional and statutory framework, the inadequate advising of auditors and accountants regarding IAS/IFRS as well as the creation of illegitimate competition due

to the simultaneous use of IAS/IFRS and Greek GAAP (these two regimes differ significantly).

Bellas *et al.* (2007) investigated the effects of IAS/IFRS adoption on the financial statements motivated by the basic differences between the two systems: Greek GAAP, as mentioned above, are based on a French system that seeks creditors' protection and follow only historical cost accounting, in contrast to IAS/IFRS, which are investor-oriented and introduce fair-value accounting. Their results revealed that *"tangible assets, fixed assets, and total liabilities record considerably higher prices in the balance sheets of companies after the accounting changeover"* (Bellas *et al.*, 2007, p. 15) and that the value relevance of book value was higher after the adoption of IAS/IFRS.

Athianos *et al.* (2005) also investigated the effects of IAS/IFRS adoption on the financial statements of 40 Greek companies that voluntarily switched to IAS/IFRS and their effect on key ratios. Significantly higher values for book value of equity and total assets along with net income were reported for all those numbers prepared under IAS/IFRS compared with those prepared under Greek GAAP. Additionally, the valuation role of book value was higher under IAS/IFRS, and the valuation role of net income was higher under Greek GAAP. Finally, they found that the adjustments to book value that occurred after IAS/IFRS adoption were value relevant, whereas those of net income were not. The value relevance of book value and equity were also examined by Kotsios-Kontokotsios and Negkakis (2007), who found that both book value and equity were value relevant after the adoption of IAS/IFRS.

The HCMC (2006) also published the results of a study in 2006. The main purpose of this research was to investigate the effects of IAS/IFRS in terms of the revenue and equity changes of Greek companies listed on the ASE. The results indicate an increase in both shareholders' equity and profit after tax after the adoption of IAS/IFRS, by 2.44% and 6.16% respectively. The increase in shareholders' equity is attributed to adjustments to tangible and intangible assets as well as liabilities.

Grant Thornton (2006) investigated the effects of IAS/IFRS adoption in the financial statements of Greek companies, one year after they became mandatory. Specifically, according to the results, more than half of the Greek companies reported a positive relationship between IAS/IFRS adoption and book value of equity. In agreement with

the study by the HCMC (2006) mentioned above, Grant Thornton (2006) attributes the effect of IAS/IFRS adoption on equity to assets and liabilities adjustments. Specifically, the adjustment of deferred tax and fixed assets are considered to have had a positive impact on equity, whereas the adjustments to the way that liabilities are recognized, or the way that start-up costs are derecognized, are considered to have had a negative impact on shareholders' equity.

Georgakopoulou *et al.* (2010), in an examination of Greek companies that belonged to the manufacturing sector and were listed on the ASE in 2004, found that shareholders' equity as well as total assets and total liabilities were higher when the values were reported under IAS/IFRS, compared with those reported under Greek GAAP. Iatridis and Dalla (2011) also investigated the effects of IAS/IFRS adoption on the financial statements of Greek companies listed on the ASE and belonging to different sectors. Their results indicate an increased profitability level for most of the investigated companies as well as increased leverage, whereas they found that Greek companies' liquidity decreased after the adoption of IAS/IFRS.

On the other hand, findings by Diakomichalis and Toudas (2007) indicate a decrease in shareholders' equity after the adoption of IAS/IFRS for a sample of Greek companies belonging to the financial services' sector and the technology and media sector. Some of the reasons identified as the key factors for the reported decrease were the dividend policy, the use of fair-value valuation instead of historical cost valuation, and the inventories policy.

Additionally, Tsalavoutas and Evans (2010) investigated the impact of IAS/IFRS adoption on the financial statements of companies listed on the ASE, while dividing their sample based on whether the companies had employed one of the "Big Four"[3] auditing companies. Companies that did not use any of the big four auditors faced major impacts on liquidity, gearing and net profit compared with the companies that used big four auditors. However, their results reveal that a significantly high number of companies experienced negative changes, suggesting that the transition to IAS/IFRS did not mean that all those companies that adopted IAS/IFRS experienced an increase in shareholders' equity.

[3] The "Big Four" auditing firms are KPMG, Ernst & Young, PricewaterhouseCoopers and Deloitte.

Floros (2007) investigated the effect of IAS/IFRS adoption on the volatility of the Greek stock market. Using as a sample four indices provided by the ASE, he found that the adoption of IAS/IFRS had a negative effect on the volatility of the Greek stock market, which, however, was found to be insignificant.

Additionally, Iatridis and Rouvolis (2010) investigated the reasons why Greek companies adopted IAS/IFRS before they became mandatory, and the level of earnings management and the value relevance of numbers reported under IAS/IFRS. The standard deviation of key measures calculated through balance sheets and income statements increased after the adoption of IAS/IFRS, indicating that the volatility of those measures increased. Their research period included two years after the adoption of IAS/IFRS; during the first year, the numbers reported did not support the aspect of improved financial measures, most probably because the transition to IAS/IFRS was costly. In the second year, however, according to Iatridis and Rouvolis (2010), the values reported for the financial measures improved significantly.

The effect of IAS/IFRS adoption on financial and narrative reporting was examined by Garefalakis *et al.* (2011). The sample used comprised companies belonging to the banking sector, and the period under investigation was 2002–2007. The results indicate that the Management Commentary Scoring Sheet improved after the adoption of IAS/IFRS and that their adoption had a positive impact on key financial indicators such as return on assets and return on equity.

Table 3.1 summarizes the findings on the effects on financial statements in the Greek market, along with the relevant literature. Assets were found to have increased, along with liabilities, net income, profitability and leverage. On the other hand, equity was affected both positively and negatively by IAS/IFRS adoption.

Variable	Findings	Relevant Research
Assets	Increase	Bellas *et al.* (2007); Athianos *et al.* (2005); Georgakopoulou *et al.* (2010)
Liabilities	Increase	Bellas *et al.* (2007); Gerogakopoulou *et al.* (2010)
Book Value of Equity	Increase	HCMC (2006); Grant Thornton (2006); Athianos *et al.* (2005); Tsalavoutas and Evans (2010)
	Decrease	Diakomichalis and Toudas (2007); Tsalavoutas and Evans (2010)
Net Income	Increase	HCMC (2006)
Profitability	Increase	Iatridis and Dalla (2011)
Leverage	Increase	Iatridis and Dalla (2011)

Table 3.1: Summary table

3.3 Prior Research on IAS/IFRS Adoption and Earnings Management

Prior literature has focused on the effect of IAS/IFRS adoption on earnings management, mainly in Europe. Most of the studies found that IAS/IFRS were of higher quality than local GAAPs, by investigating factors such as value relevance, timely loss recognition and earnings management. Some papers (Yu, 2004; Cai, 2008) also highlight that the use of earnings management cannot be reduced only by adopting IAS/IFRS; there also needs to be proper IAS/IFRS enforcement and implementation.

Some studies investigated various countries around the world. Barth *et al.* (2008) explored the effect of voluntary adoption of IAS/IFRS in 21 countries and found that the level of earnings management decreased after IAS/IFRS adoption. Moreover, the results of Cai *et al.* (2008) reveal that the adoption of IAS/IFRS increased the reporting quality of companies operating in 32 countries. Specifically, their results show that countries that adopted IAS/IFRS experienced decreasing earnings management levels over time. Cai *et al.* (2008) argue that the enforcement of IAS/IFRS is also important because the use of earnings management can be reduced through stronger enforcement.

Some studies focused on the effect of IAS/IFRS adoption in Europe. For example, findings by Capkun *et al.* (2012) indicate that the level of earnings management

increased in Europe after IAS/IFRS adoption. Specifically, they divided the sample into three groups (early, on-time and late adopters) and found that all three groups experienced higher level of earnings management. The researchers attribute this increased level of earnings management to the fact that some IAS/IFRS that were new or revised allowed *"firms greater flexibility in choosing among alternative accounting treatments"* (Capkun *et al.*, 2012, p. 3).

Capkun *et al.* (2008) also investigated the effect of IAS/IFRS adoption on earnings quality in European countries where companies were not allowed to switch voluntarily from their local GAAP to IAS/IFRS. They also found that the level of earnings management increased; the investigated companies were found to have managed their earnings upwards. Additionally, the researchers found that companies that reported high earnings before the transition to IAS/IFRS tended to manage their earnings less after the IAS/IFRS adoption, while companies that reported low earnings before the transition to IAS/IFRS tend to manage their earnings more after the IAS/IFRS adoption.

A comparison of the level of earnings management before and after IAS/IFRS adoption was also performed by Aussenegg *et al.* (2008), who used data from 17 European countries. Their results indicate that the adoption of IAS/IFRS improved earnings quality. In other words, they found that companies reporting under their local GAAP exhibited more earnings management than companies reporting under IAS/IFRS.

A study by Van Tendeloo and Vanstraelen (2005) focused on Germany. They investigated whether the voluntary adoption of IAS/IFRS was associated with lower levels of earnings management. Their results indicate no statistically significant relationship between earnings management and the voluntary adoption of IAS/IFRS in Germany. Paananen and Lin (2009) also focused on the effect of IAS/IFRS adoption on accounting quality in Germany, and found that it had not improved. On the other hand, Goncharov and Zimmerman (2006) found that German companies engaged less in earnings management after IAS/IFRS adoption than they did before IAS/IFRS adoption.

Paananen (2008) focused on Sweden in an attempt to determine whether the mandatory adoption of IAS/IFRS had a positive or negative result on the quality of accounting information. The results reveal that, in the case of Sweden, the variables under investigation (earnings smoothing, managing of earnings towards targets, timeliness and

stock price associations) were either statistically insignificant or significant, but signified a decrease in accounting quality. This, according to Paananen (2008), implies that the Swedish GAAP were of higher quality than the IAS/IFRS.

Earnings management was also the variable investigated in a study by Jeanjean and Stolowy (2008). Their research was conducted for Australia, France and the UK, and their findings show that the level of earnings management did not decline in Australia or the UK after the adoption of IAS/IFRS, but in contrast, it increased in France. Their innovative research suggests that the IASB should focus on the formation of common goals instead of the harmonization of accounting standards.

Iatridis and Rouvolis (2010), in investigating whether the IAS/IFRS adoption was associated with lower levels of earnings management in Greece, found that Greek companies reported lower levels of earnings management when reporting under IAS/IFRS than they did when reporting under Greek GAAP.

As can be seen from the analysis above, despite the fact that several studies have examined the relationship between IAS/IFRS adoption and the use of earnings management, the results are mixed. Therefore, Chapter 4 of this thesis seeks to provide evidence on the relationship between IAS/IFRS adoption and earnings management by focusing on Greece, which according to Leuz *et al.* (2003) has one of the highest levels of earnings management of any country.

3.4 Prior Research on IAS/IFRS Adoption and Debt Financing

As will be seen in Section 5.1, despite the fact that many studies have examined the effects of IAS/IFRS adoption in the equity markets, only a few have examined the impact of their adoption on debt. The empirical outcomes so far are limited, and thus there cannot be an evaluation of the effects of IAS/IFRS adoption on debt markets. Here lies the contribution of Chapter 5: it provides evidence on the impact of IAS/IFRS adoption on cost of debt in an emerging market: Greece.

The research findings of Wu and Zhang (2009), who used as a sample companies from all over the world, indicate that the voluntary adoption of IAS/IFRS was associated with

a higher sensitivity of credit ratings regarding the default factor. Specifically, their results reveal that there was a high relevance of accounting information after the companies switched voluntarily to IAS/IFRS for their credit rating. In contrast, when the adoption of IAS/IFRS was mandatory, there was significantly higher sensitivity only in those countries with strong legal policies. The researchers conclude, however, that the higher sensitivity of credit ratings for all those companies that switched to IAS/IFRS voluntarily may not have been a result of the adoption itself, because the findings on mandatory adoption show no effect on credit ratings.

Florou and Kosi (2009) investigated the cost of debt, its secured status and its maturity in the UK. They controlled for default risk and debt as well as issuer characteristics and found that the terms of debt contracting were affected by IAS/IFRS adoption. Specifically, they found that the cost of debt was statistically significant and negatively related to the adoption of IAS/IFRS. On the other hand, their results regarding secured status and the maturity of a debt contract show that there was an insignificant relationship between them and the adoption of IAS/IFRS.

Kim *et al.* (2010), using as a sample companies from 40 countries (including Greece), investigated the effects of voluntary IAS/IFRS adoption on loan contracting. They found that all those companies that switched to IAS/IFRS voluntarily were charged lower loan rates compared with the level of loan rates charged to all those companies that chose to follow their local GAAP. The terms of the loans were found to be less restrictive for the voluntarily adopters than for those following local accounting policy. The researchers also examined whether the voluntary adoption of IAS/IFRS changed the lender mix and increased the number of lenders, by exploring the relationship between the number of lenders and the voluntary switch to IAS/IFRS, including as control variables borrower-specific characteristics (such as size and leverage) and loan-specific characteristics (such as loan size and loan maturity). They found that, because of the reduced information asymmetry (through the voluntary adoption of IAS/IFRS) faced by lenders, the number of lenders participating in loan syndicates increased. Finally, they found that loan rates decreased significantly after the voluntary adoption of IAS/IFRS irrespective of *"the quality of the information environment, the strength of creditor rights protection, the efficacy of legal enforcement, and the level of economic development"* (Kim *et al.*, 2010, p. 6). Their research is relevant to the context of Greece, because they included Greek companies in their sample.

This section reveals that there are only a few papers that focus on the effects of the IAS/IFRS adoption on debt markets and therefore, there is the need to further examine debt markets. Thus, chapter 5 of the present thesis tries to explore the effect of the IAS/IFRS adoption on the cost of debt of the Greek companies.

3.5 Prior Research on IAS/IFRS Adoption and Gearing

According to Cuijpers and Buijink (2005, p. 494), *"using IAS typically implies using stricter measurement rules and making more disclosures in financial statements than would be required under a firm's local GAAP"*. Additionally, according to Ding *et al.* (2007), Greek GAAP is of lower quality than IAS/IFRS. Although much attention has been focused on whether the level of disclosure is related to gearing, little attention has been focused on whether the adoption of better disclosure policies (IAS/IFRS) affects the level of gearing.

Gearing (also called leverage) has been an important variable within the accounting disclosure literature. As mentioned above, many studies have investigated whether high-leveraged or low-leveraged companies disclose more information (Chow and Wong-Boren, 1987; Malone *et al.*, 1993; Hossain *et al.*, 1995; Wallace and Naser, 1995; Zarzeski, 1996; Abd-Elsalam and Weetman, 2003). The literature reveals mixed results in terms of the relationship between disclosure and leverage.

Specifically, Chow and Wong-Boren (1987) investigated the extent to which Mexican companies voluntarily disclosed financial information within their annual reports. They identified three company characteristics as important determinants in the companies' decisions to disclose financial information: leverage, company size and assets in place. Although the researchers hypothesized that leverage and disclosure were positively related because of the higher agency costs for high-leveraged companies, they found no statistically significant positive relationship between these two variables in the case of Mexican companies.

A positive relationship between leverage and financial disclosure was also hypothesized by Malone *et al.* (1993). According to Jensen and Meckling (1976, cited in Malone *et al.*, 1993, p. 252), *"if highly leveraged firms do, in fact, disclose financial information*

to a greater extent than those less leveraged, greater costs of disclosure would be the result". Their results reveal a positive and statistically significant relationship between financial disclosure and leverage.

Hossain *et al.* (1995) also examined whether high-leveraged companies in New Zealand disclosed more financial information. They found that the relationship between the two variables is positive and statistically significant, suggesting that high-leveraged companies may use voluntary disclosure as a mechanism for the reduction of agency costs. Specifically, according to agency theory, debt-holders and shareholders or managers have different incentives. In a high-leveraged company, debt-holders will attempt to protect themselves; thus, managers and shareholders would seek to provide a higher level of monitoring by disclosing voluntarily more information in the company's annual report.

On the other hand, a negative but statistically insignificant relationship between leverage and disclosure was found by Wallace and Naser (1995) in the case of companies listed on the Hong Kong Exchange. The negative relationship was attributed to the different nature of the economic and political environment of Hong Kong.

A negative relationship between disclosure and leverage was also hypothesized by Zarzeski (1996). He states that, although it is likely that companies with low debt ratios disclose less information to their creditors, high-leveraged companies are usually found *"in countries with high uncertainty avoidance"* (Zarzeski, 1996, p. 24). Thus, high-leveraged companies may have developed relationships with banks that would finance them, therefore lessening the companies' need to turn to public ownership. This means that high-leveraged companies have a lower percentage of stock ownership that would not provide incentives to investors to ask for more information. Zarzeski (1996) investigated 256 companies from various countries such as France, the UK and the USA and found a negative and statistically significant relationship between leverage and disclosure, indicating that high-leveraged companies disclose less information.

Abd-Elsalam and Weetman (2003) examined the relationship between disclosure and leverage in Egypt. They found a negative and statistically significant relationship between the two variables. They explain the negative reported relationship by arguing that, if new accounting rules were introduced, the company needed to renegotiate and

monitor the terms of debt agreements, which would be costly. Therefore, the managers of companies with high leverage were reluctant to adopt new accounting rules voluntary, because of the abovementioned monitoring and contracting costs (Holthausen and Leftwich, 1983).

Several studies have found that the ratios used for the measurement of leverage increased after the adoption of IAS/IFRS (Covrig *et al.*, 2007; Paananen, 2008; Karanamou and Nishiotis, 2009; Iatridis and Rouvolis, 2010; Daske *et al.*, 2011), but, as mentioned above, there is no evidence on whether the adoption of IAS/IFRS affected this increase.

Specifically, Covrig *et al.* (2007), from a dataset of companies around the world that switched to IAS/IFRS, found an increase in leverage, and Paananen (2008) found that leverage increased in Sweden after the adoption of IAS/IFRS. Athianos *et al.* (2005) investigated 40 Greek companies that voluntarily switched from Greek GAAP to IAS/IFRS during 2003–2004, while Iatridis and Rouvolis (2010) examined 254 Greek companies during 2004–2006, and both sets of researchers found that leverage increased when companies adopted IAS/IFRS. Although increased leverage has been reported, no reasons have been given for its increase. Thus, Chapter 6 of this thesis seeks to examine whether there is a statistically significant relationship between leverage (gearing) and IAS/IFRS adoption.

3.6 Conclusion

As can be seen from the above analysis, although previous studies focusing on IAS/IFRS adoption around the world have covered many aspects of the effects of this adoption, little evidence has been provided for Greece (Brown, 2011). Although Greece has been considered as having one of the highest levels of earnings management of any country (Leuz *et al.*, 2003), little evidence has been provided on whether earnings management decreased after the adoption of IAS/IFRS in Greece. Therefore, Chapter 4 of this thesis investigates whether the introduction of IAS/IFRS decreased earnings management in Greece, by using the Modified Jones model and five different proxies.

Additionally, no evidence has been provided regarding the effects of IAS/IFRS adoption on the debt market in Greece. Therefore, Chapter 5 explores whether the introduction of IAS/IFRS has affected the cost of debt in Greece. Moreover, although it has been reported that gearing increased after the adoption of IAS/IFRS in Greece (Athianos *et al.*, 2005; Iatridis and Dalla, 2011), there is no evidence supporting the reasons given for this increase. Chapter 6 adds to the literature by investigating possible reasons for the increase in gearing and whether IAS/IFRS adoption affected this increase.

To conclude, compared with previous research, the basic contribution of the present thesis is that it sheds more light on the effects of IAS/IFRS adoption in the Greek market. Specifically, it investigates whether the transition to IAS/IFRS has affected the level of earnings management since the time when, before the adoption of IAS/IFRS, Greece was classified as having one of the highest levels of earnings management of any country (Leuz *et al.*, 2003). Additionally, it investigates whether the cost of debt (Chapter 5) and the level of gearing (Chapter 6) have been affected by the introduction of IAS/IFRS in the Greek market.

Chapter 4

The Effect of IAS/IFRS Adoption on Earnings Management

4.1 Introduction

Earnings management is a significant issue in accounting research and refers to the alteration of a company's earnings by the manager in the company's favour. The earnings of a company are considered to be of high quality when the company uses less earnings management in its accounting policies (Frankel *et al.*, 2002; Chen *et al.*, 2008). Attempts to define earnings management have led to three acceptable definitions:

(1) Earnings management is the process of taking actions within the boundaries of accounting principles with the intention to create a desired and beneficial level of reported earnings (Davidson *et al.*, 1987).
(2) Earnings management is an intended alteration of data in the external financial reporting process, in order to gain private benefit (Schipper, 1989).
(3) Earnings management is a result of the manager's use of judgement in financial reporting in order to present a more attractive economic performance of the company and misguide some stakeholders or affect contractual outcomes that depend on economic performance (Healy and Wahlen, 1999).

The quality of reported earnings can be evaluated by examining the extent of earnings management, which aims to misguide stakeholders by presenting improved financial performance or to impact contractual outcomes that are dependent on the earnings. There are a variety of factors behind a manager's decision to manage earnings either via accounting decisions or by structuring transactions. These factors may be explicit or inexplicit contracts, the company's standing in capital markets, the need for external financing, the policy-making environment that the company resides in and other special circumstances.

The present chapter explores whether the alteration of managerial decisions is significant in minimizing the contrasting effects of accounting changes. Smoothing the accounting numbers and taking advantage of the right time to implement an accounting change according to the company's needs can ease the economic effects of the

accounting change (Bazaz and Senteney, 2001). The findings of this chapter may provide information to help accounting standards setters regarding the imposition of more flexible or more rigorous financial reporting standards.

IAS/IFRS were developed with a view to harmonizing accounting practices. The main incentive for the harmonization of accounting standards is the creation of a free market of investments (Leuz and Verrecchia, 2000); it also helps investors to undertake certain decisions. Specifically, the adoption of a common set of accounting standards is expected to lead to a reduction in costs and uncertainty and to enable comparability among any parent company and its subsidiaries as well as among entities in the same industry but in different countries. Miles and Nobes (1998) agree that a set of rules common in all countries may reduce the risk of missed investment opportunities. According to Ball *et al.* (2003), the adoption of high-quality standards may be a necessary factor, although not sufficient on its own, for the achievement of high-quality information.

This chapter contributes to the literature by investigating whether high financial reporting quality is associated with the adoption of IAS/IFRS. Specifically, it questions whether the quality of earnings reported in Greek annual reports has been affected by IAS/IFRS adoption and whether these standards can offset managers' incentives to engage in earnings management. Previous research (Aussenegg *et al.*, 2008) shows that countries that reported low earnings management before the adoption of IAS/IFRS (English legal origin countries and Northern European countries) experienced no change in the level of earnings management, whereas countries that reported a high level of earnings management experienced a decline in its level after the adoption of IAS/IFRS. Greece is classified by Leuz *et al.* (2003) as having one of the highest levels of earnings management of any country. Therefore, to assess the effect of IAS/IFRS adoption on earnings quality, the present chapter focuses on Greece, which is a French-civil-law country with low investor protection rights (La Porta *et al.*, 1997).

This chapter employs the method of discretionary accruals (Dechow *et al*., 1995; Becker *et al*., 1998); the Modified Jones model is used for the estimation of discretionary accruals, because it is considered to be the most powerful among the models developed for the measurement of earnings management. Additionally, five other proxies are used for the estimation of accruals, to increase the robustness of the results.

The data used for the analysis of this chapter have been obtained from the OSIRIS database and the annual reports of Greek companies, and the period investigated is eight years, from 2001 through to 2008. In total, 181 Greek companies listed on the ASE belonging to all sectors other than the insurance, financial and banking services sector were sampled. The results are in line with those of prior research (Barth *et al.*, 2008; Iatridis and Rouvolis, 2010), revealing a reduction in the level of earnings management used by Greek companies after the adoption of IAS/IFRS. The remainder of this chapter is structured as follows. Section 4.2 explores why companies use earnings management and whether Greek companies use creative accounting practices. The development of the research hypothesis (H1) is presented in Section 4.3. Section 4.4 describes the various approaches used for the measurement of earnings management. Section 4.5 specifies the model used in the present chapter, Section 4.6 analyses the findings, and Section 4.7 provides conclusions to the chapter.

4.2 Theoretical Background

4.2.1 Why do companies manage their earnings?

According to agency theory, the use of creative accounting practices within a company may be attributed to the different interests between shareholders (principals) and managers (agents). This problem has been an issue since the 1920s but received most attention during the 1980s and particularly during the 1990s. The literature has provided mixed results regarding the use of earnings management. There are cases in which companies tend to manage their earnings at a high level, and other cases in which companies do not manage their earnings. The present section is an effort to identify why and when companies manage their earnings.

According to a study by Dechow and Skinner (2000), companies whose managers are involved in creative accounting practices can be identified by considering their managerial motives. Therefore, and with regard to capital market incentives, Perry and Williams (1994) and Wu (1997) tested the hypothesis that the manager of a buyout company has an incentive to minimize earnings in the year before publicly announcing his intention to bid for control of the company, so as to acquire ownership of the

company at a lower price. However, an earlier study conducted by DeAngelo (1986) provided insufficient evidence of earnings management by such companies.

Additionally, the hypothesis that managers maximize earnings before equity offers in order to augment the expectations of investors regarding future performance and raise the offer price has been tested by numerous studies. The results of the majority of these studies verify this hypothesis, because they show that companies report income-increasing unanticipated accruals before initial public offerings (Chaney and Lewis, 1998), seasoned equity offers (Rangan, 1998) and stock-financed acquisitions (Erickson and Wang, 1999).

Another opposing view emphasizes the penalties resulting from false earnings signals (in other words, specific legal relief which investors may avail of, in tandem with implicit penalties suffered by companies by way of damage to their reputation). Shivakumar (2000, p. 339) argues that *"investors infer earnings management and rationally undo its effects at equity offerings"*, while Rangan's (1998) claim of investor gullibility can be attributed to the misspecification of the test used.

If investors and managers "undo" earnings management, then the revelation of companies involved in creative accounting practices that form a violation should not have any effect or such negative effects on stock prices (Feroz *et al.*, 1991).

In conclusion, empirical evidence shows that companies use creative accounting as part of their practices for stock market reasons. This view, which is in accordance with the conclusion reached by Dechow and Skinner (2000), is supported by the findings of studies that have focused on earnings management in relation to the expectations of financial analysts or management (Bange and DeBondt, 1998). These findings indicate that failure to beat or meet the standards mentioned above may have negative effects on stock prices, as detailed by Barth *et al.* (1999).

The academic literature has shown that companies tend to hide bad economic performance by overstating their profits (Hayn, 1995; Burgstahler and Dichev, 1997). Beaver *et al.* (2003) show that public firms tend to manage their earnings in order to avoid losses. Bauwhede *et al.* (2003) also found that companies tend to manipulate

their earnings towards the earnings reported in the previous year in order to avoid reporting any declines in their numbers.

On the other hand, studies that have investigated the use of creative accounting on the basis of contracting purposes have provided mixed results (Baralexis, 2004). DeAngelo *et al.* (1994) and Healy and Palepu (1990) explored whether earnings management was connected to stable dividends, but found no significant relationship between the two variables. In contrast, Kasanen *et al.* (1996) found that Finnish companies tend to use earnings management in order to accomplish stable dividends.

The academic literature has also dealt with the relationship between earnings management and managers' incentives. DeAngelo (1988) found that managers tend to manipulate the company's earnings in order to secure their jobs, and Darrough *et al.* (1999) and Healy (1985) found that managers tend to manipulate the company's earnings in order to obtain higher bonus compensation. Another incentive for earnings manipulation is related to income tax: companies tend to understate their earnings in order to save taxes (Galegari, 2000; Beatty and Harris, 2001). According to Blake and Salas (1996), paying the minimum income tax is at the top of the list of incentives for earnings management.

The empirical results throughout the literature have also explored the relationship between earnings management and political costs: depending on the cost, companies tend to understate or exaggerate their earnings. According to Collins *et al.* (1995), companies that must meet minimum capital requirements tend to exaggerate their earnings (Al Najjar and Riahi-Belkaoni, 2001), whereas companies tend to understate their earnings for growth purposes or for environmental purposes (Patten and Trompeter, 2003).

To sum up, companies may use creative accounting for different reasons: to avoid political costs and hide bad economic performance for contracting purposes, income tax purposes and stock market purposes (Healy and Wahlen, 1999). Having identified in this section why and when companies tend to manage their earnings, Section 4.2.2 examines which of the abovementioned incentives and opportunities hold in the Greek market.

4.2.2 Do Greek companies use creative accounting practices?

Greek companies are *"characterized by poor management performance"* (Baralexis, 2004, p. 8). As mentioned in Chapter 2, there is high ownership concentration, and the average owner of a Greek company is accustomed to consumption, which on top of poor management performance, creates liquidity problems (Baralexis, 2004); thus, there is high demand for external financing. As mentioned in Section 2.4.3, Greek managers seek to avoid paying tax; therefore, they employ practices that will enable them to pay the least tax possible. The abovementioned factors can create motives that may direct, if not all, at least some, companies to the use of creative accounting.

Reinforcing the abovementioned arguments, Dechow and Skinner (2000, p. 237) state that *"certain investors rely completely on earnings numbers reported on the face of income statement because their ability to process more sophisticated information is limited".* Pijper (1993) also claims that users' education can act as a tool to reduce the use of creative accounting practices because they do not have the sufficient levels of sophistication to "undo" earnings management[4].

If the sophistication levels of account users are low in advanced countries such as the UK and the USA, then the degree of sophistication is significantly lower in the case of Greece if we take into consideration the ideas discussed in Chapter 2. Thus, creative accounting practices are highly likely to occur in Greece.

According to another perspective, penalties that result from earnings management (such as lawsuits by investors) may prevent companies from implementing creative accounting practices. Moreover, actions against creative accounting practices have been taken by stock exchanges committees (DuCharme *et al.*, 2003). Nevertheless, in the case of Greece, investors cannot "undo" earnings management. Thus, this accounts for why no Greek investor has filed a lawsuit relating to earnings management. With regard to the Greek Stock Market Commission, it was inactive until 1999, and it was only in 2002 that it imposed the first penalty for the dissemination of misleading information after claims made by the press (Editorial, 2002).

[4] Undoing earnings management means that when the account users detect earnings management, they ''undo'' its effects by reconstructing the balance sheet and income statement using amounts that represent in a more faithful way the underlying economics of a company (Wahlen, 2013).

Regarding corporate governance as a plausible barrier to earnings management, Dechow *et al.* (1996, p. 1) identify that

> *"firms manipulating earnings are: (i) more likely to have board of directors dominated by management; (ii) more likely to have a CEO who simultaneously serves as chairman of the board; (iii) more likely to have a CEO who is also the firm's founder; (iv) less likely to have an audit committee; and (v) less likely to have an outside blockholder".*

This accurately depicts the situation in Greece. Greek listed companies were not required to have and almost never had non-executives as members of boards of directors (Baralexis, 2004). Additionally, empirical research by Park and Shin (2003) reveals that the addition of outside directors to the board did not act in a way to prevent earnings management because of the high concentration of ownership and the underdeveloped outside-directors' labour market.

Earnings management in Greece was fairly easy because Greek accountants tended to be more vulnerable to management pressure to manage earnings because the accountants were not well educated or well paid. In addition, Greek accountants faced no legal consequences until 2000 in case they signed financial statements that proved to be untrue or unfair (Baralexis, 2004).

Moreover, books and records of companies (which may have restrained illegal accounting practices) were rarely inspected, and external audit was restricted to a small percentage of Greek companies. Additionally, the financial analyst profession, which may have limited earnings management, remained underdeveloped in Greece.

Therefore, earnings management in Greece was stronger than in advanced countries. However, good financial performance is one of the basic conditions for a company to receive a loan. Thus, taking into consideration the liquidity issues that many Greek companies faced, it is reasonable to argue that large and medium-sized companies were led to manipulate earnings upwards. Watts and Zimmerman (1978) support this view as they stress the high costs of "undoing" earnings management.

Moreover, as accounting income is closely associated with tax income in Greece, the overstatement of earnings appears to have been a costly action that led to higher income taxes. Nevertheless, this did not prevent companies from profit overstatement for the reasons that are examined below.

First, as set out by the law governing economic development (i.e. Law 2601/1998), tax relief was provided by the government for any new investment (anywhere from 40% to 100% of profits, which were subsequently invested in factories and equipment), and an alternative means of help came in the form of subsidies covering a substantial percentage of (new) investment in addition to 25% to 40% of interest arising from borrowed capital, with the amount dependent on the area where the investment was made. This tax relief and subsidy aid mitigated the increment on income tax wrought by profit exaggeration.

Second, because exaggerated earnings in a given year would yield the opposite impact on profits in subsequent year(s), an increment on income taxes paid in the former year would be mitigated by a significant drop in the latter year(s). Naturally, the publishing of decreased profits in the subsequent year could have a potentially detrimental effect on share prices. Such detrimental effects, however, would not extend to the managerial level, because Greek companies are typified by a familial nature. To conclude, there appears to be a high plausibility that earnings management was prevalent in Greece, and this assertion is supported by Spathis (2002) in terms of its ubiquitous nature in the form of fraudulent financial statements.

4.3 Development of Hypothesis

According to the International Financial Reporting Standards Foundation (IFRS Foundation, 2010), its principal objectives are

- to develop a single set of high-quality, understandable, enforceable and globally accepted IFRS through its standard-setting body, the IASB;
- to promote the use and rigorous application of those standards;
- to take account of the financial reporting needs of emerging economies and small and medium-sized entities; and

- to bring about convergence of national accounting standards and IFRS to high-quality solutions.

The demand for harmonization may pressure companies to improve their financial reporting (Baiman and Verrecchia, 1996; Palea, 2007). Tighter accounting standards can help investors by reducing their cost of acquiring experts, which in turn can improve earnings quality (Barth *et al.*, 1999).

Much research has been done on whether the quality of earnings reported in annual reports is affected by IAS/IFRS adoption and whether these standards can reduce the managers' incentives to engage in earnings management.

Ewert and Wagenhofer (2005) used a rational-expectations equilibrium model and found that the adoption of IAS/IFRS improves accounting quality and reduces the level of earnings management. Similar results have been provided by Barth *et al.* (2008), who examined whether the adoption of IAS/IFRS is connected with higher accounting quality. Using a sample of entities from 21 countries that adopted IAS/IFRS, they found that these entities reported lower earnings management. Similarly, Goncharov and Zimmerman (2006) found that in Germany the level of earnings management reduced after the adoption of IAS/IFRS, and Zhou *et al.* (2007) found that Chinese firms were more likely to smooth their earnings before than after the adoption of IAS/IFRS.

Ding *et al.* (2007) created a list of standards that did not exist under local accounting systems and a list of standards that existed but were different from those proposed by the IASB. They found that the absence of standards was negatively related to the equity market and positively related to the ownership concentration of each country: "the level of absence is higher in countries with a less developed equity market and with a higher ownership concentration" (Ding *et al.*, 2007, p 31). In addition, they found that companies operating in countries with high absence of standards used more earnings management, and Greece had the highest absence of standards of any country.

Research by Lang *et al.* (2006) found that companies operating in countries that have weak investor protection experience higher levels of earnings management.

Aussenegg *et al.* (2008) found that countries that reported low earnings management before the adoption of IAS/IFRS (English legal origin countries and Northern European countries) experienced no change in the level of earnings management, whereas countries that reported a high level of earnings management experienced a decline in this level. In research done by Leuz *et al.* (2003), who investigated the level of earnings management in 31 countries, Greece was classified as one of two countries (Austria being the other one) with the highest levels of earnings management.

Several studies suggest that the different economic and institutional factors existing in each country may affect managers' incentives and can determine the quality of the information provided in the financial statements of the company. According to Ball *et al.* (2000), code-law countries and common-law countries have different demands for accounting income. Code-law countries are characterized by weak investor protection, and the companies are financed mostly by banks and their government. On the other hand, the capital markets of common-law countries are more active and are characterized by strong investor protection (the information provided is investor-oriented) (Van Tendeloo and Vanstraelen, 2005). Accounting information aims to meet other needs, including elimination of political costs, determination of income tax and dividend payments. According to Leuz *et al.* (2003), earnings management is more predominant in code-law countries than in common-law countries. The advantages of earnings management, such as liquidity, tend to surpass the costs, in particular in countries with weak investor protection rights. The adoption of IAS/IFRS by a company leads to less earnings management because after the adoption of IAS/IFRS, the company has more incentives to report useful information for investors compared with a non-adopter.

The present thesis examines the effect of the adoption of IAS/IFRS on earnings management in Greece, which, according to La Porta *et al.* (2000), has low investor protection rights.

Most of the abovementioned studies imply that the adoption of IAS/IFRS had a beneficial impact on accounting quality; in particular, countries that used an accounting system that differed greatly from IASB standards increased their accounting quality significantly, as shown by lower earnings management. Additionally, as mentioned in

Section 2.4.3, the transition to IAS/IFRS is expected to have reduced the use of creative accounting in the Greek market and, therefore, reduced earnings management. As an example, in contrast to the Greek GAAP, under which any changes in the inventories' value are disclosed in the notes but not recognized, according to the fundamental principle of IAS 2, *"inventories are required to be stated at the lower of cost and net realisable value"* and any changes in the inventories' value should be recognized (see Section 2.7.2).

As mentioned in Section 2.7, some of the basic differences between the Greek GAAP and IAS/IFRS, such as depreciation of tangible assets, inventory valuation, amortization of goodwill, revaluation of fixed tangible assets and deferred taxation, are expected to have affected the reported earnings disclosed in the annual reports of the Greek companies.

Additionally, under IAS 19, all companies should recognize the cost of providing employee benefits in the period in which the benefit is earned by an employee, rather than when it is paid or payable (IAS PLUS, Deloitte, 2012b). On the other hand, under Greek GAAP, companies could recognize employee benefits only for the employees that were due to retire in the following financial year, which allowed them to report higher shareholders' equity. Moreover, not many disclosures were required. This means that Greek companies did not have to recognize their liabilities explicitly. As mentioned above, the introduction of IAS 19 required all companies to recognize defined benefit liabilities for all their employees. Thus, the adoption of IAS 19 is expected to have increased the net income because the necessary adjustments are expected to have increased the liabilities: an increase in a liability account is added back to net income (Epstein and Jermakowicz, 2007).

In addition, IAS 37 required the recognition of provisions as well as contingent liabilities and contingent assets by setting specific criteria for the identification of each of them. On the other hand, as mentioned in Section 2.4.3, Greek companies could be subjective on which provisions they recognized and disclosed within their annual reports. In particular, the differentiation between contingent liabilities and provisions was not clear under Greek law. Under Greek GAAP, there was no identification of any recognition criteria for liabilities; the GAAP simply required Greek firms to recognize liabilities for any definable risk. This means that Greek companies could decide

whether or not they recognized provisions. Thus, after the adoption of IAS/IFRS, Greek companies were not able to be subjective and were required to recognize all provisions. This is expected to have increased net income because an increase in a liability account is added back to the net income (Epstein and Jermakowicz, 2007).

To conclude, Greece is a code-law country with high levels of earnings management, and those Greek companies that reported under IAS/IFRS are expected to have had more incentives to report useful information for investors than those reporting under Greek GAAP. Additionally, the introduction of specific standards (e.g. IAS 2 and IAS 37) posed requirements that gave no Greek companies the opportunity to manage their earnings at the level they used to manage them. Therefore, the following can be hypothesized:

H1: *The adoption of IAS/IFRS lowered earnings management in Greece.*

4.4 Measuring Earnings Management

The most common research designs in the earnings management literature can be classified into three categories: those that are based on aggregate accruals, those that are based on specific accruals and those that are based on the distribution of earnings after management.

The design of aggregate accruals was introduced by Jones (1991, p. 194), who used an *"estimate of the discretionary component of total accruals as the measure of earnings management rather than the discretionary component of a single accrual"*. McNichols *et al.* (1988) introduced the design of specific accruals, which, however, has some disadvantages. For example, it is difficult to reflect an estimation of the discretionary component in a specific accrual, because it may be unclear which accrual management may have been used to manipulate earnings. This is connected to another issue: how many companies use the same specific accrual. Moreover, the cost arising through the need for larger datasets is a disadvantage when using specific accruals.

Burgstahler and Dichev (1997) and Degeorge *et al.* (1999) based their research on the distribution of earnings after management. Burgstahler and Dichev (1997)

hypothesized that, if firms have greater incentives to achieve earnings above a benchmark, then the distribution of earnings after management will have fewer observations than expected for earnings amounts just below the threshold, and it will have more observations than expected for earnings just above the threshold. Again, there is the problem of identifying management incentives, which may vary from company to company.

All of the above are part of the academic literature; however, financial analysts also employ methods to measure earnings quality. Bellovary *et al.* (2005) suggested a model combining eight previously developed models. Including 20 criteria for earnings measurement, Bellovary *et al.* (2005, p. 34) developed *"a point value ranging from 1 to 5 for each of these 20 criteria, with a possible total of 100. A score of 1 would indicate a negative effect on earnings quality, and a score of 5 would indicate a very positive effect on earnings quality".*

The recent literature (Lang *et al.*, 2003, 2006; Barth *et al.*, 2008) uses five metrics for the measurement of earnings management: four for earnings smoothing, and one for managing towards a target. The first measure for earnings smoothing is based on the variability of the change in net profit (ΔNP) deflated by total assets. The net profit is also called earnings, which means that, if managers attempt to smooth their earnings, then they attempt to present stable net profits over the years. If companies are smoothing earnings, then there should be a smaller variance of the change in net profit. The variance of the change in net profit is measured by its standard deviation, because the standard deviation shows the volatility of a variable.

The second metric for earnings smoothing is based on the mean ratio of variability of ΔNP to the variability of ΔCF, the change in operating cash flows. A net profit with high volatility means that the company faces cash flows that are more volatile; the use of accruals in earnings management means that variability of ΔCF should be higher than that of ΔNP. Following this rationale, the ratio of variability of ΔNP to that of ΔCF is estimated. It is expected that after the adoption of IAS/IFRS companies exhibited more variable earnings than they did before their adoption.

In the third metric for earnings smoothing, the Spearman correlation is used. The use of accrual earnings is considered to be a better measure than cash flows regarding a

company's performance, because it moderates any problems that could occur in the process of measuring cash flows over short intervals (Dechow, 1994). Nevertheless, because of the flexibility provided by GAAP, all the accounting methods that use accruals depend on managerial discretion. Managerial discretion could allow communication of private information, which in turn could increase earnings' informativeness (Watts and Zimmerman, 1986; Healy and Palepu, 1993). In other words, income smoothing could increase the informativeness of past and current earnings about future earnings. On the other hand, the conflict of shareholders' and managers' incentives could motivate managers to take advantage of the flexibility provided by GAAP in order to manage profit to their own benefit, which means that the reported profit in the annual reports would have been distorted (Watts and Zimmerman, 1986; Healy and Palepu, 1993). Overall, *"accruals have higher incremental information content above cash flows"* (Bowen *et al.*, 1986, p. 715), and the use of accrued earnings is a better measure of a company's performance than cash flow (Dechow, 1994). If companies use accruals as a measurement of their performance, then there should be a negative correlation between cash flow and accruals (Land and Lang, 2002; Myers *et al.*, 2007). Because accruals are expected to be negatively correlated with cash flows, this will enable a comparison between the correlations of accruals and cash flow.

The fourth metric is an ordinary least squares (OLS) regression for investigating the level of association between accruals and cash flows, size, profitability, and leverage as well as the accounting regime used. A negative relationship between the dummy variable used to show the regime system followed and the dependent variable (accruals) would indicate that companies were more likely to smooth their earnings while reporting under Greek GAAP. A positive relationship between accruals and the variable used to capture the effect of IAS/IFRS on operating cash flows would indicate that companies reporting under IAS/IFRS tended to smooth their earnings less than those reporting under Greek GAAP.

The fifth metric used for the measurement of earnings management is the coefficient on small positive net income. A negative coefficient on small positive net income would show that, under IAS/IFRS, companies tended to manage their profit figures less frequently than they did under Greek GAAP, in order to report small positive rather than negative amounts.

As mentioned above, there are disadvantages when using specific accruals or distribution of earnings after management as a mean for measuring earnings management. Therefore, this chapter uses the method of discretionary accruals, which is explained in the following section. The five metrics explained above are also used to increase the robustness of the results.

4.5 Model Specification

Following the literature (Dechow *et al.*, 1995; Becker *et al.*, 1998), discretionary accruals were used as a measure of earnings management. The Modified Jones model was used for the estimation of discretionary accruals; this model is considered the most powerful of the models developed for the measurement of earnings management. According to Subramanyam (1996), although discretionary accruals estimated through the use of the Modified Jones model are priced by the market, their coefficient is lower in magnitude than that reported for non-discretionary accruals. This implies that market participants do not consider discretionary accruals to be a reliable component of earnings; therefore, discretionary accruals can be manipulated more easily by managers and are perceived to be a valid method of measuring earnings management.

For the measurement of discretionary accruals, the estimation of total accruals and that of non-discretionary accruals are required. Two measures of total accruals were used in this study: total accruals using the balance sheet method, and total accruals using the cash flow method. The second measure was also used to check for robustness of the results and of the accruals measure.

Following the rationale of Lobo and Zhou (2001), Van Tendeloo and Vanstraelen (2005) and Tsipouridou and Spathis (2012) total accruals, using the balance sheet method, were calculated as follows:

$$TACC_{BS_{it}} = \Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} + \Delta Debt_{it} - Dep_{it} \qquad (1)$$

where ΔCA is the change in current assets, ΔCL is the change in current liabilities, $\Delta Cash$ is the change in cash and cash equivalents, $\Delta Debt$ is the change in the current maturities of long-term debt and other short-term debt included in current liabilities, *Dep* is the depreciation and amortization expense, *i* is an index for the company and *t* is an index for time.

According to Hribar and Collins (2002), the use of discretionary accruals through the balance sheet method as a measure of earnings management may result in incorrect estimation results because of misspecification of accruals. For this reason, discretionary accruals were also calculated in this study with the cash flow method. Following Lobo and Zhou (2001) and Hribar and Collins (2002), total accruals using the cash flow method were calculated as follows:

$$TACC_{CF_{it}} = EBXT_{it} - OCF_{it} \qquad (2)$$

where *EBXT* are the earnings before extraordinary items and discontinued operations divided by total assets, and *OCF* is the operating cash flow divided by total assets.

Discretionary accruals are calculated as the difference between total accruals and non-discretionary accruals. For the estimation of non-discretionary accruals, estimation of the Modified Jones model is required:

$$TACC_{BS_{it}} = \alpha_1 \left(\frac{1}{TA_{i,t-1}}\right) + \alpha_2(\Delta REV_{it} - \Delta REC_{it}) + \alpha_3 PPE_{it} + \varepsilon_{it} \qquad (3)$$

$$TACC_{CF_{it}} = \beta_1 \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2(\Delta REV_{it} - \Delta REC_{it}) + \beta_3 PPE_{it} + u_{it} \qquad (4)$$

where $TACC_{BS}$ and $TACC_{CF}$ are the total accruals calculated through the balance sheet and the cash flow method, respectively, divided by the total assets of the previous year, *TA* is the total assets of company *i* at the end of the previous year, ΔREV is the change

in revenue divided by the total assets of the previous year, ΔREC is the change in net receivable divided by the total assets of the previous year, and *PPE* is the property, plant and equipment divided by the total assets of the previous year. The dependent variable is divided by total assets to control for differences in company size (Van de Poel and Vanstraelen, 2011), and the independent variables are divided by total assets to reduce heteroscedasticity[5] (Makar and Alam, 2003).

Because non-discretionary accruals are part of total accruals, OLS regression was used for the estimation of equations (3) and (4). The estimated coefficients α_1, α_2 and α_3 as well as β_1, β_2 and β_3 were saved and used in the following equations for the estimation of non-discretionary accruals:

$$NDACC_{BS_{it}} = \hat{a}_1\left(\frac{1}{TA_{i,t-1}}\right) + \hat{a}_2(\Delta REV_{it} - \Delta REC_{it}) + \hat{a}_3 PPE_{it} + \varepsilon_{it} \qquad (5)$$

$$NDACC_{CF_{it}} = \hat{\beta}_1\left(\frac{1}{TA_{i,t-1}}\right) + \hat{\beta}_2(\Delta REV_{it} - \Delta REC_{it}) + \hat{\beta}_3 PPE_{it} + \varepsilon_{it} \qquad (6)$$

where $NDACC_{BS}$ are the non-discretionary accruals calculated through the balance sheet method, and $NDACC_{CF}$ are the non-discretionary accruals calculated through the cash flow method.

Finally, the following equation was used for the estimation of discretionary accruals:

$$DACC_{BS_{it}} = TACC_{BS_{it}} - NDACC_{BS_{it}} \qquad (7)$$

$$DACC_{CF_{it}} = TACC_{CF_{it}} - NDACC_{CF_{it}} \qquad (8)$$

[5] The OLS regression assumes that the variance of the error term is constant, therefore homoscedastic. When the variance of the error term is not constant, there is heteroscedasticity, which makes difficult the accurate estimation of regression coefficients (Downs and Rocke, 1979).

where $DACC_{BS}$ are the discretionary accruals calculated through the balance sheet method and $DACC_{CF}$ are the discretionary accruals calculated through the cash flow method.

Table 2 in the Appendix shows descriptive statistics of the variables used for the calculation of discretionary accruals through the balance sheet and the cash flow method.

4.5.1 Model for testing the hypothesis

The absolute value of discretionary accruals was used as the dependent variable. According to Warfield *et al.* (1995), the absolute value of discretionary accruals is a good proxy for capturing the effect of both income-decreasing and income-increasing earnings management. In other words, the absolute value of discretionary accruals was used in the present study with the intention of capturing both the positive and the negative manipulation of earnings (Van de Poel and Vanstraelen, 2011).

The independent variable used is a dummy variable indicating whether Greek companies adopted IAS/IFRS. The dummy has the value 1 when companies adopted the IAS/IFRS, and the value 0 when companies reported under Greek GAAP. Specifically, this dummy variable takes into consideration voluntary adopters, on-time adopters and late adopters, while it does not differentiate between full and partially adopters. Table 4.1 shows the total numbers of observations in each group (IAS/IFRS and Greek GAAP).

Year	*Greek GAAP*	*IAS/IFRS*
2001	181	0
2002	181	0
2003	181	0
2004	141	40
2005	57	124
2006	31	150
2007	0	181
2008	0	181
Total	*772*	*676*

Table 4.1: Analysis of the sample based on the independent variable.

Other than the independent variable, three control variables were used. The first control variable used in the model was *Size*, measured as the natural logarithm of total assets. According to Watts and Zimmerman (1990), the size of a company may be used as a proxy for political attention. Specifically, a negative relationship is expected between size and discretionary accruals because small companies are more likely to manage their earnings because the likelihood of the government inspecting small companies is lower than the likelihood of it inspecting large companies.

The second control variable used in the model was gearing. According to the debt-equity hypothesis (Watts and Zimmerman, 1990), companies with high levels of gearing tend to manipulate their earnings upwards with the intention of avoiding violations of debt covenants. Therefore, under the debt-equity hypothesis, gearing and accruals are positively related. On the other hand, earnings management policies and leverage may be negatively related because *"high leverage may induce income-decreasing earnings management in financially distressed firms in view of contractual renegotiations"* (Becker *et al.*, 1998, cited in Van Tendeloo and Vanstraelen, 2005, p. 165). Therefore, under the contractual renegotiations hypothesis, accruals and gearing are negatively related. The proxy used for the measurement of gearing was the ratio of total debt to total assets.

The third control variable in the model was the absolute value of operating cash flow divided by total assets. This was used as a measurement of performance for each company because companies facing extreme financial performance report large numbers (positive or negative) of discretionary accruals (Van Tendeloo and Vanstraelen, 2005). Additionally, according to Dechow *et al.* (1995), companies with high operating cash flow use more accruals as part of their policy, whereas companies with low operating cash flow use less accruals. Thus, a positive relationship is expected between discretionary accruals and operating cash flow.

Companies operating in the same industry face similar growth prospects and market conditions, which affect their financial decisions. According to Mackay and Phillips (2005) a company's capital structure decisions are affected by industry and group factors. Additionally, according to Harford (2005) specific industry shocks that involve large scale assets' reallocation generate merger waves. Given the importance of such industry effects, industry dummies are included in the model to control for industry effects.

Following the rationale of Van Tendeloo and Vanstraelen (2005), the relationship between earnings management and IAS/IFRS adoption was estimated with the following equation:

$$DACC_{it} = \alpha_0 + \alpha_1 IAS_{it} + \alpha_2 Size_{it} + \alpha_3 Leverage_{it} + \alpha_4 Ocf_{it} + \alpha_5 Industry + \varepsilon_{it} \quad (9)$$

where *DACC* are the absolute discretionary accruals calculated by the balance sheet and the cash flow method, *IAS* is a dummy variable with the value 1 for all those numbers reported under IAS/IFRS and 0 otherwise, *Size* is the size of the company measured by the natural logarithm of total assets, *Leverage* is measured by total debt divided by total assets, *Ocf* is the operating cash flow, *Industry* are dummy variables controlling for industry effects, *i* is an index for the company, *t* is an index for time and α and β are the coefficients to be estimated.

According to equation (9), discretionary accruals are a function of the dummy variable used for the adoption of IAS/IFRS and four exogenous variables taken from the literature that relate to the dependent variable.

4.6 Results

4.6.1 Descriptive statistics

The descriptive statistics refer to a sample of companies listed on the ASE over the period 2001–2008. As mentioned in Section 1.6, of the 264 companies that were, as of 2012, listed on the ASE, 253 were listed during 2001–2008. Moreover, 37 companies belonging to the insurance, financial and banking services sector were excluded, and 35 further companies were excluded because of the non-availability of data. This means that the study comprised 181 non-financial companies that had been continuously listed on the ASE during the period under investigation.

The data collected were for companies that had continuously published data for the eight years under investigation. Therefore, if a company entered the ASE after 2001 and/or left the ASE before 2008, then it was excluded from the sample. Consequently, 62 companies (financial and non-financial) were excluded. The OSIRIS and the annual reports of the companies were used for the data collection.

Table 4.2 shows the number of companies and distribution of the sample by industry group. It indicates that the sample consisted mostly of food and beverage, technology and industrial goods and services companies as well as health care and construction companies, which may reveal their level of control over the Greek economy.

Sector	**Number of companies**	**Distribution**	**Dummies**
Utilities	2	1.12%	*first*
Oil & Gas	2	1.12%	*second*
Retail	8	4.40%	*third*
Food & Beverage	21	11.59%	*fourth*
Personal & household goods	31	5.00%	*fifth*
Technology	20	11.05%	*sixth*
Chemicals	10	5.52%	*seventh*
Industrial goods & services	22	12.12%	*eighth*
Basic resources	12	6.63%	*ninth*
Telecommunications	2	1.12%	*tenth*
Travel & Leisure	11	6.08%	*eleventh*
Constructions & materials	22	12.12%	*twelfth*
Health care	9	17.13%	*thirteenth*
Media	9	5.00%	*fourteenth*
Total	181	100%	

Table 4.2: Number of Greek companies used in the study

Table 4.3 shows descriptive statistics on the sample of the companies; it contains information about the mean, standard deviation, minimum and maximum values of the variables used in this chapter. More descriptive statistics are provided in the Appendix (Table 1).

As can be seen from Table 4.3, when accruals were calculated based on the balance sheet method, Greek companies reported lower levels of discretionary accruals ($DACC_{BS}$) after the adoption of IAS/IFRS (0.005) than before their adoption (0.057), and the difference was statistically significant at the level of 5%. However, after the adoption of IAS/IFRS, the level of discretionary accruals (0.049) was slightly higher than that reported before their adoption (0.047), and the significance was not statistically significant, when the cash flow method was used for calculating discretionary accruals ($DACC_{CF}$). The mean of total accruals calculated through the cash flow method ($TACC_{CF}$) was negative for both periods and is consistent with the

findings of Iatridis (2008), who found that UK companies reported negative total accruals before as well as after the adoption of IAS/IFRS.[6]

The average *Size* of the Greek companies under investigation was lower under Greek GAAP (12.72) than after IAS/IFRS adoption (13.06). This statistically significant increase implies that more assets were recognized under IAS/IFRS or that they were measured at a higher value, possibly because IAS/IFRS are fair-value oriented. This result agrees with that of Athianos *et al.* (2005), who also reported a significant increase in the size of Greek companies, and is consistent with the findings of Barth *et al.* (2008), who found that the size of companies that adopted IAS/IFRS increased significantly.

	Mean		**Standard Deviation**		**Min**		**Max**		**Test for difference in mean**
	N=772	**N=676**	**N=772**	**N=676**	**N=772**	**N=676**	**N=772**	**N=676**	
	Greek GAAP	**IAS/IFRS**	**Greek GAAP**	**IAS/IFRS**	**Greek GAAP**	**IAS/IFRS**	**Greek GAAP**	**IAS/IFRS**	
$TACC_{BS}$	-0.032	0.021	0.470	0.463	-0.99	-0.97	0.99	0.99	-0.30
$NDACC_{BS}$	0.026	0.026	0.043	0.042	-0.51	-0.68	0.44	0.35	-2.14**
$DACC_{BS}$	0.057	0.005	0.258	0.254	0.005	0.003	0.99	0.98	-2.16**
$TACC_{CF}$	-0.071	-0.073	0.102	0.107	-0.904	-0.758	0.415	0.485	-0.3403
$NDACC_{CF}$	-0.024	-0.023	0.025	0.023	-0.328	-0.268	0.103	0.213	0.2117
$DACC_{CF}$	0.047	0.049	0.091	0.094	0.001	0.001	0.84	0.76	-0.3998
Size	12.72	13.06	1.29	1.31	10.11	10.1	16.23	16.45	11.29***
Leverage	0.3	0.41	0.18	0.21	0.001	0.001	0.79	1.19	8.01***
Ocf	0.06	0.02	0.08	0.12	-0.1	-1.17	0.29	0.3	1.77*

Table 4.3: Descriptive Statistics

Note: $TACC_{BS}$ are the total accruals calculated through the balance sheet method, $NDACC_{BS}$ are the non-discretionary accruals calculated through the balance sheet method, $DACC_{BS}$ are the absolute discretionary accruals calculated through the use of balance sheet method, $TACC_{CF}$ are the total accruals calculated through the cash flow method, $NDACC_{CF}$ are the non-discretionary accruals calculated through the cash flow method, $DACC_{CF}$ are the absolute discretionary accruals calculated through the use of the cash flow method, *Size* is the natural logarithm of total assets, *Leverage* is the ratio of total debt to total assets, *Ocf* is the operating cash flow divided by total assets.

*, **, and *** represent the 10%, 5%, and 1% levels of significance, respectively, for a two-tailed test.

1: the values are small and rounded to zero

[6] Negative accruals reveal that the company tends to downplay its profit, whereas positive accruals reveal that the company tends to overstate its earnings.

Regarding *Leverage*, it can be seen from Table 4.3 that its average value increased after the adoption of IAS/IFRS (0.41) compared with the period before IAS/IFRS adoption (0.30), and the increase was significant at the 1% level. This finding implies that debt financing of the Greek companies was lower under Greek GAAP, in line with the findings of Paananen (2008), who found that the leverage of Swedish companies increased after the adoption of IAS/IFRS. It also agrees with the findings of Athianos *et al.* (2005) and Iatridis and Rouvolis (2010), who reported higher leverage levels for Greek companies after IAS/IFRS adoption. Table 4.3 also shows that Greek companies, on average, were more liquid before the adoption of IAS/IFRS, because the mean of the operating cash flow (*Ocf*) was higher for the years before the adoption of IAS/IFRS.

There is the possibility that one or more of the independent variables included in the model correlate with one another. To detect this possibility, a test was conducted for multicollinearity. According to Gujarati (2003), if the independent variables are correlated, a correct estimation of the beta coefficients of the variables is not possible. The presence of multicollinearity makes the identification of the separate effects of the independent variables difficult, and some of the variables may be dropped because the model cannot isolate the effect that each independent variable may have on the dependent variable.

A method of testing for multicollinearity is the use of the correlation matrix. If two of the independent variables are correlated, then there is collinearity in the model. As can be seen from Table 4.4, some of the variables were correlated. Therefore, the variance inflation factor (VIF) could be used for testing for multicollinearity. The VIF revealed the degree to which every independent variable could be explained by the other independent variables in the model. According to Guajarati (2003), the VIF should have a value less than or equal to 10 for no multicollinearity among the variables. As can be seen from Table 4.5, there was no multicollinearity in the sample, because all the VIF values were below the critical value of 10.

	IAS	*Size*	*Leverage*	*Ocf*	*first*	*second*	*third*	*fourth*
IAS	1.00							
Size	0.757***	1.00						
Leverage	0.131***	0.126***	1.00					
Ocf	0.046**	0.055**	-0.09***	1.00				
first	0.04*	-0.58***	-0.16***	-0.038	1.00			
second	0.02	-0.57***	-0.17***	-0.036	-0.02	1.00		
third	0.02	-0.13***	-0.04***	-0.044*	-0.02	-0.01	1.00	
fourth	0.04	-0.0149	0.0139	0.05**	-0.05*	-0.02	-0.02	1.00
fifth	0.06**	0.054**	-0.09***	0.06***	-0.08***	-0.04	-0.70	-0.08***
sixth	-0.01	0.0167	-0.0290	-0.0155	-0.05**	-0.02	-0.02	-0.05**
seventh	-0.02	-0.0268	-0.11***	-0.0011	-0.08***	-0.03	-0.04	-0.07***
eighth	-0.01	-0.42***	-0.13***	0.0246	-0.06**	-0.02	-0.03	-0.05**
ninth	-0.02	-0.0194	-0.0031	-0.07**	-0.08***	-0.04	-0.04	-0.08***
tenth	-0.01	0.05***	0.18***	0.005	-0.06**	-0.03	-0.03	-0.06**
eleventh	-0.01	0.0309	0.0251	0.0098	-0.02	-0.01	-0.01	-0.02
twelfth	-0.01	0.0055	0.0151	0.067**	-0.06**	-0.03	-0.03	-0.05**
thirteenth	-0.02	-0.05	-0.0146	-0.023	-0.08***	-0.04	-0.04	-0.08***

Table 4.4: Correlation Matrix

Note: *IAS* is a dummy variable coded 1 for all those numbers reported under IAS/IFRS and 0 otherwise, *Size* is measured as the natural logarithm of total assets, *Leverage* is the ratio of total debt to total assets, *Ocf* is the operating cash flow, *first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth* are dummy variables capturing any industry effects.
*, **, and *** represent the 10%, 5%, and 1% levels of significance, respectively, for a two-tailed test.

	fifth	*sixth*	*seventh*	*eighth*	*ninth*	*tenth*	*eleventh*	*twelfth*	*thirteenth*
IAS									
Size									
Leverage									
Ocf									
first									
second									
third									
fourth									
fifth	1.00								
sixth	-0.08***	1.00							
seventh	-0.13***	-0.08***	1.00						
eighth	-0.09***	-0.05**	-0.08***	1.00					
ninth	-0.13***	-0.08***	-0.13***	-0.09***	1.00				
thenth	-0.10***	-0.06**	-0.09***	-0.06**	-0.10***	1.00			
eleventh	-0.04	-0.02	-0.04	-0.02	-0.04	-0.03	1.00		
twelfth	-0.09***	-0.06**	-0.09***	-0.06**	-0.09***	-0.07***	-0.03	1.00	
thirteenth	-0.13***	-0.08***	-0.13***	-0.09***	-0.14***	-0.14***	-0.04	-0.09***	1.000

Table 4.4: Correlation Matrix (continued)

Note: *IAS* is a dummy variable coded 1 for all those numbers reported under IAS/IFRS and 0 otherwise, *Size* is measured as the natural logarithm of total assets, *Leverage* is the ratio of total debt to total assets, *Ocf* is the operating cash flow, *first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth* are dummy variables capturing any industry effects.

*, **, and *** represent the 10%, 5%, and 1% levels of significance, respectively, for a two-tailed test.

Variable	*VIF*
IAS	1.01
Size	1.72
Leverage	1.21
Ocf	1.05
first	4.27
second	2.45
third	1.17
fourth	1.17
fifth	1.28
sixth	1.12
seventh	1.28
eighth	2.23
ninth	1.24
tenth	1.12
eleventh	1.08
twelfth	1.08
thirteenth	1.15

Table 4.5: Variance Inflation Factor (VIF)
Note: all the variables have been defined in table 4.3

4.6.2 Endogeneity Test

The *IAS* variable may be an endogenous[7] variable because of the possibility of omitting variables from the model that affect both the decision to switch to IAS/IFRS and earnings management (Van Tendeloo and Vanstraelen, 2005). To test for this possibility, following the rationale of Van Tendeloo and Vanstraelen (2005), the extended regression version of the Hausman Specification Test was employed. Specifically, a new model was estimated in which *IAS* was the dependent variable. The independent variables were all the variables used in equation (6) and an additional one. The additional variable was the growth measured as the ratio of market to book value, because it has been found to explain significantly the regulatory regime (Iatridis, 2008).

The equation is as follows:

$$IAS_{it} = \alpha_0 + \alpha_1 Size_{it} + \alpha_2 Leverage_{it} + \alpha_3 Ocf_{it} + \alpha_4 Industry_{it} + \alpha_5 Growth_{it} + u_{it} \quad (10)$$

where *Growth* is the market to book value ratio and *u* is the error term.

[7] Endogenous variable is a variable whose value may be determined by other variables used in the system.

After estimating equation (10), the saved residuals were used as an additional variable in equation (9). If the coefficient of the error term (estimated residual) is significantly different from 0, then the model suffers from endogeneity. If this is the case, then a simultaneous equation analysis should be performed. Descriptive statistics for *Growth* are provided in Table 9 in the Appendix. The results indicate that the estimated residual was not significantly different from 0, because the p-value was 0.8342 when accruals were estimated through the balance sheet method (Table 3, Panel B1, Appendix) and 0.1593 when accruals were estimated through the cash flow method (Table 3, Panel B2, Appendix). Therefore, the model does not suffer from endogeneity.

4.6.3 Estimation results

The model developed in Section 4.5.1 is a linear model. The assumptions of a linear regression are that each of the independent variables has a linear relationship with the dependent variable, the residuals of the regression are normally distributed, and there is no heteroscedasticity and no serial correlation of the residuals. To detect non-normally distributed residuals and heteroscedasticity, robust regressions were run in STATA (Tables 4 and 5, Appendix).

As can be seen from Table 4.6, the variable used to capture the effect of the IAS/IFRS adoption (*IAS*) was statistically significant at the 10% level and negatively related to the dependent variable when accruals were calculated following the balance sheet method. This result implies that Greek companies tended to use fewer discretionary accruals after the adoption of IAS/IFRS as a way of managing earnings. In other words, the result indicates that the adoption of IAS/IFRS was significantly correlated with lower levels of earnings management, or as Ismail *et al.* (2010, p. 19) put it: *"the level of reported earnings' departure from normal earnings is lower after the adoption of the new standard, suggesting that earnings quality is higher after the adoption of IFRS"*. Table 4.7 shows that IAS/IFRS adoption lowered earnings management even when accruals were calculated through the cash flow method, indicating that the result is robust to the use of alternative methodology for calculating the absolute value of discretionary accruals. Therefore, the coefficient of the dummy variable used for the adoption of IAS/IFRS (*IAS*) revealed a negative relationship that was statistically significant at the 5% level between IAS/IFRS adoption and accruals.

	$DACC_{BS}$	t-stat
IAS	-0.047	-1.92*
Size	-0.076	-1.74*
Leverage	-0.002	-0.26
Ocf	0.218	2.05**
first	0.290	1.22
second	-0.080	-1.30
third	-0.018	-0.14
fourth	-0.147	-1.40
fifth	0.002	0.34
sixth	-0.011	-0.21
seventh	0.075	1.76*
eighth	0.344	1.61
ninth	0.067	1.68*
tenth	0.036	0.69
eleventh	-0.133	-1.21
twelfth	0.099	1.72*
thirteenth	-0.010	-0.41
Constant	0.166	2.48***
R^2	0.195	
P Value	0.0388	N= 1448

Table 4.6: Regression results

Note: $DACC_{BS}$ are the absolute discretionary accruals calculated based on the balance sheet method, *IAS* is a dummy variable coded 1 when numbers are reported under IAS/IFRS and 0 otherwise, *Size* is the measured by the natural logarithm of total assets, *Leverage* is measured by the total debt to total assets, *Ocf* is the operating cash flows, *first, second, thritd, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth* are the dummies used for the industry classification.
*,**,*** indicate significance at the 10%, 5% and 1% level respectively.

This result is in line with that of Barth *et al.* (2008), who also found that the adoption of IAS/IFRS was related to lower levels of earnings management, as well as that of Renders and Gaeremynck (2007), who found that earnings management and IAS/IFRS adoption were negatively related. The result also agrees with that of Iatridis and

Rouvolis (2010), who, using four metrics as proxies for earnings management, found that Greek companies reported higher levels of earnings management before IAS/IFRS adoption than after their adoption.

	$DACC_{CF}$	t-stat
IAS	-0.035	-2.00**
Size	-0.021	-2.05**
Leverage	-0.000	-0.15
Ocf	0.018	2.25**
first	-0.026	-1.17
second	-0.005	-0.88
third	0.036	1.44
fourth	0.009	0.48
fifth	-0.001	-0.08
sixth	0.003	0.37
seventh	0.015	1.60
eighth	0.029	0.62
ninth	-0.008	-0.94
tenth	-0.027	-1.69*
eleventh	0.018	1.36
twelfth	0.004	0.43
thirteenth	0.002	0.31
Constant	-0.171	-2.45***
R^2	0.1457	
P Value	0.000	N=1448

Table 4.7: Regression results

Note: $DACC_{CF}$ are the absolute discretionary accruals calculated using the cash flow method. The rest of the variables have been defined in table 4.5.

*,**,*** indicate significance at the 10%, 5% and 1% level respectively.

Size was negatively related to accruals and statistically significant at the 10% level when accruals were calculated following the balance sheet method, and statistically significant at the 5% level when accruals were calculated using the cash flow method. These results imply that small Greek companies tended to use more accruals than large

Greek companies. As mentioned in Section 4.5.1, this negative relationship is attributed to the differing political attention paid to large and small companies. Large companies used fewer discretionary accruals because the government was likely to inspect large companies more often than small companies; therefore, large companies tended to avoid managing their earnings as part of their accounting practices. The results are in line with those of Van Tendeloo and Vanstraelen (2005), who found that the size of German companies and the use of accruals were negatively related. It also agrees with the findings of Tsipouridou and Spathis (2012), who investigated the use of earnings management in Greece and found that size and accruals were negatively related.

The negative relationship between leverage and accruals (Table 4.5 and Table 4.6) indicates that Greek companies that reported high levels of leverage used fewer discretionary accruals than companies that reported low levels of leverage. The result supports the contractual renegotiations hypothesis, according to which companies that report high leverage ratios may manage their earnings less in view of contractual renegotiations. Although this relationship was found to be insignificant, the result agrees with those of Van Tendeloo and Vanstraelen (2005) and Watts and Zimmerman (1990), who argue that size and accruals are negatively related. It is also in line with that of Goncharov and Zimmerman (2006), who investigated the effect of IAS/IFRS adoption on earnings management in Germany and found that leverage and accruals were negatively related but that the relationship was insignificant.

As can be seen from Tables 4.6 and 4.7, accruals and operating cash flows (*Ocf*) were found to be positively related, and the relationship was statistically significant at the level of 5% irrespective of the method followed for the calculation of accruals (balance sheet or cash flow method). The positive relationship between the abovementioned variables can be attributed to the fact that high levels of accruals (either income-increasing or income-decreasing) were reported in the annual reports of companies facing extreme financial performance. The result is in line with that of Van Tendeloo and Vanstraelen (2005) and indicates that companies that report high operating cash flows use more accruals as part of their creative accounting practices.

4.6.4 Robustness

The control variables used in this chapter are considered to be important variables within the disclosure research (Malone *et al.*, 1993; Abd-Elsalam and Weetman, 2003; Cuijpers and Buijink, 2005; Lopes and Rodrigues, 2007; Iatridis, 2008). Taking as granted the validity of the assumption that *"using IAS typically implies using stricter measurement rules and making more disclosures in financial statements than would be required under a firm's local GAAP"* (Cuijpers and Buijink, 2005, p. 494), and because disclosure is associated with the control variables used in the present chapter, additional regressions were run using interaction variables of IAS/IFRS with the control variables as part of a sensitivity analysis. The results are presented in Tables 6 and 7 of the Appendix.

The interaction variable between leverage and the independent variable (*levias*, Tables 6 and 7 of the Appendix) was found to be significant at the 5% level and positively related to accruals when they were calculated using the balance sheet method, whereas there was no statistical significance of the interaction terms when accruals were calculated using the cash flow method. The *IAS* variable remained statistically significant and negatively related to accruals when the balance sheet method was used. On the other hand, when the cash flow method was used, the *IAS* variable was found to be insignificant.

As mentioned in Section 4.4, five metrics were used for the estimation of earnings management to increase the robustness of the results. These metrics are the volatility of the change in net profit, the mean ratio of the volatility of the change in net profit, the correlation of accruals and operating cash flows, the association between accruals and the accounting regime used and the coefficient on small positive net income (Section 4.4, pp. 60-61). The volatility of the change in net profit is used as a measure of earnings management due to the fact that a smaller variance of the change in net profit would be an indication that companies smooth their earnings. The same rationale applies to the mean ratio of the volatility of the change in net profit. The correlation of accruals and operating cash flows is used as a measure of earnings management due to the fact that according to Myers *et.al.* (2007) and Land and Lang (2002) a negative correlation between accruals and cash flow would indicate that companies use accruals and the use of accrued earnings is a better measure of a company's performance than cash flows. The fourth metric can be used as a measure of earnings management due to

the fact that it can reveal whether companies use more or less accruals as part of their policy before or after the IAS/IFRS adoption. The coefficient on small positive net income can be used as a measure of earnings management due to the fact that, as mentioned in Section 4.4, a negative coefficient on the aforementioned variable would indicate that companies manage their profit figures less frequently when reporting under Greek GAAP than when reporting under IAS/IFRS.

As can be seen from Table 8 (Panel A) in the Appendix, the volatility of ΔNP (measured by its standard deviation) increased from 2.0875 under Greek GAAP to 2.2238 under IAS/IFRS. The higher volatility means that companies smoothed their earnings management less after the adoption of IAS/IFRS compared with the period before their adoption. Similarly, regarding the second metric used for the measurement of earnings management, it can be seen again from Table 8 (Panel A) in the Appendix that the volatility of the change in net profit to the change of operating cash flows (both scaled by total assets) increased from 8.7425 to 19.5814. Again, this can be translated into a decrease in the earnings management policy being used: profitability figures were smoother under Greek GAAP than they were under IAS/IFRS.

The third metric for the measurement of earnings management was based on the correlation of accruals and operating cash flows (both scaled by total assets). It can be seen from Table 8 (Panel B) in the Appendix that the correlations between the two variables were statistically significant at the level of 1%, and there was a negative correlation for both periods under investigation (before and after the adoption of IAS/IFRS). This result is consistent with that of Barth *et al.* (2008), and the negative correlation indicates that Greek companies used earnings management in both periods. Specifically, a negative correlation between cash flows and accruals implies that companies with high cash flows tended to decrease their accruals in order to "direct" their reported accounting figures. In the case of a positive correlation, companies with high cash flows would have tended to use more accruals. However, the absolute value of the correlation coefficient of the two variables after the adoption of IAS/IFRS was lower than that before their adoption, which indicates that earnings management decreased after the adoption of IAS/IFRS. The results reveal a significantly negative association between cash flow and accruals, which can be interpreted as follows: firms with low cash flows from operating activities tended to use more earnings management after the adoption of IAS/IFRS. Iatridis and Rouvolis (2010) investigated the effects of

IAS on earnings management for a three-year period (2004–2006). They found that Greek companies were still using earnings management in 2006 but that their value was lower than that reported for the first year of IAS adoption. Comparing their results with those of the present research, we can say that Greek companies continued to use earnings management, but at a lower level, because the absolute value of the beta coefficient in the present research was lower (0.0647) than that reported by Iatridis and Rouvolis (2010) (0.976).

Moving to the fourth metric, it can be seen from Table 8 (Panel C) in the Appendix that accruals ($TACC_{CF}$) and $Size_{lnmv}$ (which is measured by the natural logarithm of market value), are positively associated. This means that large firms tend to use more earnings management or accrual-increasing accounting policies. $Profitability_{opm}$ seems to be positively correlated to accruals ($TACC_{CF}$), which means that companies with high profitability tend to use earnings management, while $Leverage_{tlsf}$ seems not to be statistically significant when investigating a long period as the one in this research.

The fifth and last metric used for the measurement of earnings management was the coefficient on small positive net profit. As can be seen from Table 8 (Panel D) in the Appendix, the variable used for the small positive net profit was statistically significant at the 5% level with a negative coefficient. This means that, under IAS/IFRS, companies tended to manage their profit figures less frequently than they did under Greek GAAP, in order to report small positive rather than negative amounts.

The alternative methodology used reveals that Greek companies manage their earnings less after they switched to IAS/IFRS compared to the earnings management level they use when reporting under Greek GAAP and its results are in line with the results obtained through the use of discretionary accruals.

4.7 Conclusion

This chapter extends the research undertaken on the association between earnings management and the adoption of IAS/IFRS, and uses data from Greek companies. According to Ball *et al.* (2003), the adoption of high-quality standards may be a necessary factor for the achievement of high-quality information, but it is not sufficient

on its own. Aussenegg *et al.* (2008) found that countries that reported a high level of earnings management experienced a decline in their level, and Leuz *et al.* (2003) classify Greece as having one of the highest levels of earnings management of any country. Therefore, it was hypothesized that the adoption of IAS/IFRS decreased earnings management in Greece.

Section 4.2.2 showed that there were great opportunities for managing earnings in Greece. Therefore, Greece constitutes an interesting case in investigating whether the adoption of IAS/IFRS affected the use of creative accounting and improved accounting quality in terms of earnings management.

Previous studies used different methods to investigate whether companies smooth their earnings. The most common research designs that have been used in the earnings management literature can be classified into three categories: those that are based on aggregate accruals, those that are based on specific accruals and those that are based on the distribution of earnings after management. This chapter used discretionary accruals as a measure of earnings management. The Modified Jones model was used for the estimation of discretionary accruals; this model is considered to be the most powerful among the models developed for the measurement of earnings management.

The dataset consisted of 181 Greek companies that were listed on the ASE during the period under investigation (2001–2008). Companies that were not listed during the whole period of eight years or belonged to the insurance, financial and banking services sector were excluded. Another 35 companies were excluded because of the non-availability of data.

The results of this chapter indicate that earnings management and IAS/IFRS adoption were negatively related, and their relationship was statistically significant irrespective of whether accruals were calculated using the balance sheet method or the cash flow method. Greek companies tended to engage in less earnings management after the adoption of IAS/IFRS compared with before their adoption.

The findings of this chapter contribute to the debate on whether IAS/IFRS adoption is effective in code-law countries such as Greece, where the protection of investors' rights is weak. As mentioned above, the results indicate that IAS/IFRS adoption is related to

lower levels of earnings management, and this finding may inform policy-making bodies; it may help them to decide the minimum disclosure requirements for companies because, as shown in this chapter, these requirements are connected to a company's ability to engage in earnings management. Another implication of the findings of this chapter is that reducing accounting discretion through the adoption of a common set of accounting standards will reduce earnings management and can in turn enable the comparability of earnings across companies, reducing their informativeness.

One limitation of this chapter is that, although different incentives for earnings management have been taken into consideration through the use of control variables, there may be other incentives that have not been included in the model. Secondly, this chapter considers only earnings management as a measurement of earnings quality.

Chapter 5
The Effect of IAS/IFRS Adoption on the Cost of Debt

5.1 Introduction

All European listed companies were required to adopt by 1 January 2005 all the IAS/IFRS that had been issued before March 2004. This accounting harmonization may have lowered the estimation risk as well as the information asymmetry between insiders and outsiders of a company (Lambert *et al.*, 2012) and may have lowered the cost of capital.

The empirical results presented in the literature regarding the effects of IAS/IFRS adoption are mixed. Specifically, it has been argued that the adoption of IAS/IFRS and the cost of equity are statistically significant and negatively related only in countries with strong outsider rights and high disclosure quality (Daske *et al.*, 2008), and Lee *et al.* (2008) found no relationship between the cost of equity and IAS/IFRS adoption in countries with low disclosure quality.

However, it is necessary to pay attention to the effects of IAS/IFRS adoption on the cost of debt (other than the cost of equity), in order to obtain a clear picture of the economic consequences of their adoption. Additionally, debt financing is a fundamental method of financing (Rajan and Zingales, 1995), and according to Ball *et al.* (2008) lenders do take into consideration accounting information when they define the conditions of debt contracts.

As explained in Section 3.4, there are several studies that investigate the effects of the IAS/IFRS adoption on the equity markets (Barth *et al.*, 2008, Iatridis and Volahi, 2010) but those focusing on the debt markets are few. This means that an evaluation of the effects of the adoption of IAS/IFRS on debt markets is not easy. Here lies the contribution of this chapter: it provides evidence on the impact of IAS/IFRS adoption on cost of debt in an emerging market, Greece. As mentioned in Chapter 2, Greece has a unique accounting environment and high levels of use of creative accounting practices. In addition, Greek GAAP are significantly different from IAS/IFRS (Ding *et al.*, 2007); thus the introduction of specific standards that did not exist under Greek

GAAP, or did exist but were different from the requirements of IAS/IFRS, may have affected the cost of debt of Greek companies.

The research findings of Wu and Zhang (2009) indicate that the voluntary adoption of IAS/IFRS was associated with a higher sensitivity of credit ratings regarding the default factor, whereas in contrast, regarding the mandatory adoption of IAS/IFRS, there was significantly higher sensitivity only in those countries with strong legal policies. Florou and Kosi (2009) found that the cost of debt was statistically significant and negatively related to the adoption of IAS/IFRS. However, their research focuses on the UK, which is a common law country with an investor-oriented accounting system, compared to Greece which is a code law country with a stakeholder-oriented accounting system. Therefore, there is need to investigate the effects of the IAS/IFRS adoption in Greece due to the different nature of its accounting system. Kim *et al.* (2010) investigated the effects of voluntary IAS/IFRS adoption on loan contracting. They found that all those companies that switched to IAS/IFRS voluntarily were charged lower loan rates compared with the level of loan rates charged to all those companies that chose to follow their local GAAP.

The results of the present chapter indicate that the cost of debt of Greek companies decreased after the adoption of IAS/IFRS, supporting the view that the decreased uncertainty arising from the higher disclosure quality of IAS/IFRS compared with the Greek GAAP allowed lenders to charge lower interests.

The remainder of this chapter is structured as follows. Section 5.2, Section 5.3 and Section 5.4 present the theoretical background to debt financing (the choice between debt and equity, an explanation of the different costs of debt, the different methods of debt financing in Greece, and a description of related literature on the impact of IAS/IFRS adoption on debt markets), and the development of the hypothesis (H2) is presented in Section 5.5. Section 5.6, Section 5.7 and Section 5.8 describe the specifications of the model used in this chapter, and Section 5.9 presents the results of descriptive statistics as well as the estimation and robustness results. Section 5.10 concludes.

5.2 Theoretical Background: The Choice Between Debt and Equity

Financing is the provision of new funds to a business, by loans or sale of debt or capital stocks, and is important for the growth of an entity. *"Firms may have many choices for financing their activities: internal versus external, private versus public, and debt versus equity"* (Lee *et al.*, 1996, p. 73). Internal financing means that the company uses its own profits to make new investments, whereas external financing is funding from third parties. Types of external financing are debt (such as commercial banks and credit unions), equity (such as venture capital and merchant banks), grants and gifts.

5.2.1 The pecking order theory

According to the pecking order theory, external financing is more costly than internal financing because there is information asymmetry between a company and its investors with regard to the real value of the current and future economic position of the company. Thus, this information asymmetry may lead to a wrong valuation of the company's equity, which in turn may lead to a loss in the capital of existing shareholders (Myers and Majluf, 1984) because of the "adverse selection" problem between managers and investors. According to Myers and Majluf (1984) if a company decides to issue new securities to finance a project, then the new securities will be underpriced because managers are unable to convey the correct information about the company's investment opportunities and existing assets to investors. Therefore, it is difficult for potential investors to distinguish the good from the bad projects, and as a result, potential investors interpret the company's decision to finance its project by new securities as bad news and they misprice the securities.

Companies may be unwilling to issue equity, even if the project they are looking to invest in has positive net present value, because it may cause dilution of the shareholders' capital. According to Myers and Majluf (1984), debt instruments' borrowing, particularly those with low risk, helps companies to ease the investment inefficiencies that may occur because of information asymmetry. Equity is likely to be subject to a greater adverse selection problem or greater misevaluation than debt financing, because debt contracts are considered to be a safer means of raising capital because they reduce the possibility of loss to shareholders (Myers and Majluf, 1984).

5.2.2 The trade-off theory

Another perspective on the methods companies follow in order to decide how much debt and how much equity they will use is given by the trade-off theory. According to this theory, a company decides how much debt and how much equity it will use based on their costs and benefits. The theory states that there is an advantage and a disadvantage to financing with debt: the advantage is the tax benefits of debt, whereas the disadvantage is the costs of monetary distress. The higher the debt, the lower the marginal benefit and the higher the marginal cost, which means that each entity that seeks to maximizes its wealth will focus on this trade-off in order to choose the proportion of debt and equity that it will use. Hackbarth *et al.* (2007) found that trade-off theory may provide an adequate explanation for corporate debt structure. They state that trade-off theory provides clarification of why small companies choose only bank debt as their method of financing whereas large companies choose a mixed method of financing.

5.3 Theoretical Background: Costs of Debt

According to Modigliani and Miller (1963), a company's value can be maximized through the use of debt; this argument is based on the absence of costs. However, in the real world, there are agency and bankruptcy costs that restrain the use of debt financing and compel companies that look to maximize their value to trade-off the benefits and costs of debt. The following section describes the costs related to debt financing, such as agency costs and costs of financial distress.

5.3.1 The agency costs of debt

According to Jensen and Meckling (1976), the use of debt financing may lead to the so-called overinvestment problem, in which managers and shareholders may use debt funds to invest in risky projects. The justification behind the use of debt for investment in risky projects is the concept of limited liability, in which shareholders profit from the probability of gaining more at the cost of losing more. Jensen and Meckling (1976) argue that the overinvestment behaviour of shareholders reduces the value of the company and, therefore, they gain the wealth of creditors. As a result, creditors foresee

the shareholders' behaviour and ask for a higher risk premium, increasing the cost of debt. This is known as the "agency cost of assets substitution" problem.

In contrast, the underinvestment problem may arise, which is the result of a reduced return to the shareholders of the company, which in turn leads them to reject projects even if they have positive net present value. The reasoning behind this behaviour is that shareholders are paid after the debt of the company is paid, which means that undertaking a project with positive net present value will yield higher profits to the debt-holders (Lasfer, 1995).

Regarding the problem of assets substitution, it has been argued that highly leveraged companies have a higher probability of bankruptcy, which means that they will face a greater underinvestment problem. According to Myers (1977) and Titman and Wessels (1988), a high-growth company should raise capital through equity rather than debt, in order to be able to undertake all projects with positive net present value. In addition, Myers (1977) argues that the agency costs related to the substitution of assets may be lowered with the use of short-term debt instead of long-term debt because long-term debt requires higher incentives for asset substitution.

On the other hand, the issuing of secured debt may lessen the asset substitution problem within a company: if the company collateralizes its debt, it will be restrained from using the raised funds, which reduces the agency costs related to the asset substitution and consequently the costs of debt. At this point, it can be argued that the rates charged for debt financing are more attractive for companies that have more fixed assets because fixed assets can be used as collateral in case of bankruptcy or financial distress (Rajan and Zingales, 1995). According to Titman and Wessels (1988), companies with high growth face higher agency costs because they can be more flexible when choosing future investments and when drawing capital from banks or bondholders. Consequently, if the company cannot collateralize the debt it raises, the debt will be more expensive because a higher risk premium will be requested. Therefore, there is an inverse relationship between growth and leverage.

To sum up, the above analysis indicates that the trade-offs between the benefits and the costs of debt result in a company having an optimal capital structure, where if leverage increases above the target level, the costs of using debt financing will be greater than the

benefits, and vice versa. The benefits and costs of debt financing are important when the level of leverage is more than that targeted despite the fact that the optimal capital structure is the important one according to the trade-off theory. This suggests that both optimal capital structure as well as costs and benefits of debt financing confirm the trade-off theory (Brounen *et al.*, 2005). This may be why many companies use less debt than that suggested by theory, which indicates that a company's reported leverage ratio may not be the optimal one, thus necessitating adjustment of the observed leverage towards the optimal leverage.

However, according to Myers (1977), adjustment of observed leverage towards the optimal level may be costly because of transaction costs. This implies that adjustment may be prevented by transaction costs. For this reason, adjustment may take place only if the benefits of moving towards the targeted level of leverage are greater than or equal to the costs of the adjustment.

5.3.2 Costs of financial distress

The costs of financial distress are costs that arise because of the probability of bankruptcy: in the presence of the probability of bankruptcy, the market value of a company's assets reduces. Financial distress costs occur when a company cannot meet its financial obligations because it uses a large amount of debt as a means of financing. There are two types of bankruptcy costs: direct costs and indirect costs (Barclay and Smith, 1995). Direct costs include administrative and legal costs and costs associated with dissipated assets; shareholders are unwilling to be part of a company that will dissipate its assets as well as its overall value if it becomes bankrupt. Additionally, in the likelihood of bankruptcy, shareholders seek to expropriate bondholders' wealth by undertaking risky projects (Cornelli and Felli, 1995).

It should be mentioned that bankruptcy is not a cause of the decrease in a company's value; bankruptcy is a result of this decrease. This view is supported by Van der Wijst and Thurik (1993, p. 57): *"bankruptcy costs refer to the added costs (such as legal fees, reduced sales, increased production costs, etc.) that arise because the firm cannot meet its obligations to creditors without changing its operating or external financing activities"*. Therefore, it can be argued that, if the marginal bankruptcy costs of a company reduce, then the use of debt capital as a means of financing will increase. In

other words, companies with high marginal bankruptcy costs will use less debt as a means of financing (DeAngelo and Masulis, 1980). However, it is also argued that the more the value of a company decreases, the higher the bankruptcy costs (Warner, 1977). For this reason, bankruptcy costs are lower for large companies than for small companies, and small companies are therefore more likely to face higher bankruptcy risk, and more likely to borrow at higher rates, than large companies.

Regarding indirect costs, these are costs that arise because of the reluctance of investors to invest in a company that faces a high possibility of financial distress (Brealey and Myers, 2002). Indirect costs include costs of retaining or losing employees and customers, and costs that are related to suppliers (such as changes in agreement terms and removal of discounts).

Moreover, debt financing is associated with the so-called "debt overhang" cost (Myers, 1977), which arises when the outstanding debt of a company is at high risk. The higher the probability of bankruptcy, the higher the so-called debt overhang problem; companies may need to neglect investments that would otherwise maximize the value of the company (Calomiris *et al.*, 1994). Therefore, it can be argued that financial distress costs are higher for companies that have more volatile earnings because in these companies there is a higher possibility that the level of their earnings will drop below the level of their financial obligations; therefore, companies with more volatile earnings employ less leverage.

In the context of the Greek market, *"bankruptcy does not constitute a principle for the satisfaction of several claims but a collective enforcement procedure aiming at the proportional satisfaction of all creditors by reference to the amount of their claims"* (European Commission Report, n.d., p. 1). That is, Greek bankruptcy law places emphasis on the creditors' benefits and satisfaction and not on the distribution of profits or the liquidation of assets. Additionally, indirect costs such as retaining or losing customers are high for Greek companies, which means that it becomes difficult for companies facing bankruptcy to retain their customers, because the latter seek stable suppliers. On the other hand, indirect costs of employee loss are low in Greece because of its high unemployment rate. In addition, the market will not be willing to provide capital to all those companies that face a high risk of bankruptcy. As a result of the conservative policies followed by Greek banks, the banks are reluctant to offer debt to

high-risk companies. Therefore, lower-risk Greek companies raise debt at a more attractive rate than high-risk companies.

5.4 Theoretical Background: Methods of Debt Financing in Greece

5.4.1 Bank loans

The most common method of debt financing in Greece is through bank loans (Bellas and Tzovas, 2008). Companies can choose between two types of loans: long-term loans and working capital loans. Working capital loans are aimed at improving the company's liquidity, and their duration is usually short. On the other hand, long-term loans last longer and include installation and business equipment loans. The interest rates charged for long-term loans are usually lower than those charged for working capital loans, because of the longer duration of the former.

As already mentioned in section 2.4.3 Greek banks base their lending decisions on the ability of Greek companies to provide collateral (Filios, 1995) rather than on the information provided in the annual reports and the financial statements of the companies.

5.4.2 Corporate bonds/commercial papers

The legislative decree that defines the types of commercial papers used in Greece was voted in on 17 July 1923. Types of commercial paper include the so-called bearer paper of debentures and shares or companies that feature interest coupons or dividends (Article 68). Article 76 defines a commercial paper as including negotiable instruments issued to the order of two parties, such as insurance policies and bills of exchange.

This type of business lending is an oddity of the Greek financing system, because of the tax advantages that can be gained through the use of corporate bonds over the use of bank loans. Therefore, these bonds are used in the Greek market as a substitute for bank loans. The use of corporate bonds as a method of financing has increased over time; in 2006 it reached the level of 5.9% of GDP, from its level of 0.5% of GDP in 2002 (Hardouvelis *et al.*, 2006).

5.4.3 Factoring

Factoring is a method of debt financing usually provided by banks or public limited companies. It is a contract between two parties (a company and a third party) according to which the company assigns its accounts receivable to the factor. The factor undertakes collection, discount and credit control and covers the operation of the company's receivables. In exchange, the company will immediately retrieve 80% of its receivables and must pay interest of 0.5–2% (Kandilidis and Paraskelidis, 2008). In Greece, other than the banks that provide factoring services, there are other factoring companies such as ABC Factors and Multifactoring Plc.

5.4.4 Leasing

Leasing is a method of financing that gives a company the opportunity to expand its equipment without using its capital. The leasing company undertakes to buy the appropriate equipment based on the company's requirements. Then, it leases the equipment to the company for a pre-specified period. After the end of this period, the company can choose to buy the leased equipment or to release it.

Payment instalments can be every month, every three months or every six months. The interest paid is slightly higher than that in the case of debt financing.[8] Additionally, the company must pay 0.1–1% in advance.

Leasing was introduced in Greece as a method of short-term or long-term financing of companies for the acquirement of assets through law N.1665/1986 and was amended through laws 2367/1995 and 2682/1999. Taking into consideration that leasing in Greece covers only approximately 9.8% of the investments in assets compared with the level of 20% in the rest of Europe, it is expected that it will continue to grow as a method of financing in the Greek market (Gisaki, 2010).

[8] The empirical results throughout the literature regarding whether leasing and debt financing are substitutes or complements are mixed. According to Ang and Peterson (1984) they are complements, whereas other researchers consider them to be substitutes (Krishnan and Moyer, 1994; Marston and Harris, 1988; Yan, 2006). They are included here to cover for the possibility of being complements.

5.5 Development of Hypothesis

Insiders may have better access than outsiders to information regarding the current, past and future performance of a company. The reports (preliminary, quarterly and annual) to which managers have access are signals of the company's future economic performance. Therefore, the financial statements of a company may be used as a tool to reduce information asymmetry within the process of debt contracting (Holthausen and Leftwich, 1983).

Although, in some cases, lenders and banks have better information access to a company's financial performance, there is still information asymmetry between borrowers and creditors, which decreases the efficiency of the loan and debt contracting process (Fama, 1985). Specifically, investors and underwriters attempt to estimate the default risk of the company in which they are interested, based on the information provided by the managers (known as signalling theory).[9] As a result, the probability of a company withholding adverse information regarding its current and future economic performance may affect the company's default risk: the lower the probability of a company withholding information, the lower the risk premium that it will be charged. Hence, information provided by a company's financial statements may alleviate information asymmetry, improving the debt contracting process as well as the terms of debt contracts (Watts and Zimmerman, 1986; Watts, 2003).

A method in which lenders, investors and underwriters may assess the probability of a company withholding unfavourable information is through past disclosures. The degree of transparency in the quarterly and annual reports, the frequency of press releases and the ease of access to discussions with managers are factors that can ease the assessment of default risk. This means that companies with higher-quality accounting disclosures can be assessed more easily than companies with lower-quality accounting disclosures. Lenders charge lower risk premiums to companies with higher-quality accounting disclosure because they believe that there is a lower probability that they will withhold unfavourable information. This negative relationship between disclosure quality and cost of debt is reported in several papers (e.g. Sengupta, 1998; Bharath *et al.*, 2008; Orens *et al.*, 2010).

[9] According to signalling theory, two parties of a company do not have access to the same information. The sender of the information must choose how and whether to signal the information, and the receiver must decide how to interpret the signal that is sent (Connelly *et al.*, 2011).

Following the theoretical framework presented above, the mandatory adoption of IAS/IFRS is expected to have affected debt financing in Greece. In general, accounting harmonization through the mandatory adoption of IAS/IFRS by all listed European companies has reportedly enabled the direct comparison of financial statements, because standards of high quality boost investors' confidence; thus, similar economic transactions are treated the same among countries that have adopted the IAS/IFRS (United Nations, 2008). Moreover, the quality of earnings has improved, even in the case of Greece, as shown in Chapter 4. Therefore, the mandatory adoption of IAS/IFRS should have had an effect on the cost of debt of Greek companies, because, as stated in Section 2.4.3, after the adoption of IAS/IFRS, Greek banks were able to rely on the information disclosed in the financial statements of Greek companies.

An explanation of why the cost of external financing was reduced by the adoption of higher-quality accounting disclosures is provided by Lambert *et al.* (2006). According to their analysis, companies with low-quality accounting information take wrong investment decisions because of mis-coordination between companies and their capital suppliers. In other words, *"the IAS/IFRS enable investors to evaluate securities more accurately and to reflect the information in correct pricing"* (Lambert *et al.*, 2006, p. 30). For this reason, companies with high-quality accounting reports would raise external capital at a lower risk premium. Because the IAS/IFRS are of higher quality compared with other local GAAPs, the adoption of IAS/IFRS may have reduced the mis-coordination between companies and suppliers, which in turn enabled companies to borrow at better terms than they did before the adoption of IAS/IFRS.

According to Covrig *et al.* (2007), the decision of a company to switch from local GAAP to IAS/IFRS is a strategic commitment because IAS/IFRS increase the quality as well as the quantity of accounting disclosures. As mentioned above, increased accounting quality enables lenders to charge lower risk premiums because of the decreased uncertainty regarding the company's default risk. Consequently, the cost of external financing for these companies will be lower because of the decreased uncertainty (Baiman and Verrecchia, 1996). In summary, the costs regarding the monitoring of the company's ability to repay its debt or the costs regarding the monitoring of the company's economic performance are reduced through the higher quality of disclosures under IAS/IFRS; therefore, it is expected that the adoption of IAS/IFRS decreased the cost of debt financing. On the other hand, the default risk of a

company may have increased because of the availability of information that had not been previously disclosed within its annual reports. Thus, lenders would charge higher premiums to all these companies. Therefore, it is expected that the adoption of IAS/IFRS affected cost of debt either positively or negatively.

Additionally, the adoption of IAS/IFRS introduced changes in the measurement and the recognition rules that may have affected the interest expenses as well as the balance sheet debt disclosed in the accounts, and therefore the cost of debt. The following sections explain the introduction of new rules that may have affected the cost of debt.

5.5.1 IAS 17: Leases

IAS 17 distinguishes between operating leases and finance leases. In contrast, under Greek GAAP, all leases were recognized and treated as operating leases: no distinction was made between operating leases and finance leases. In finance leases, the lessee enjoys several benefits but also assumes some ownership risks. Therefore, a finance lease should be recognized and disclosed in the balance sheet both as a liability and as an asset. The company can depreciate the asset every year and deduct the interest expense that has been charged to the company as part of the lease agreement.

This means that the adoption of IAS 17 affected the cost of debt (calculated as the ratio of interest expenses to balance sheet debt) because it increased the interest expenses disclosed in the income statement and the long-term debt disclosed in the balance sheet.

5.5.2 IAS 23: Borrowing costs

According to IAS 23, borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset must be capitalized as part of the cost of that asset. In contrast, Greek GAAP required borrowing costs that were directly attributable to the acquisition, construction or production of a qualifying asset either to be capitalized as assets and amortized over a maximum of five years or to be expensed in the period in which they occurred. This means that the option of expensing any borrowing costs that existed under Greek GAAP became disallowed under IAS/IFRS, which in turn may have affected the interest expenses reported in companies' annual reports.

To summarize, it is predicted that the adoption of IAS/IFRS will have affected the cost of debt in Greece because IAS/IFRS adoption affected the uncertainty of default risk and improved the coordination between borrowers and lenders. Additionally, the different requirements introduced through IAS 17 and IAS 23 may have affected cost of debt. Therefore, the following is hypothesized:

H2: *The adoption of IAS/IFRS affected (positively or negatively) the cost of debt.*

5.6 Model Specification: Dependent Variable

The literature on the cost of debt uses different measures for estimating the cost of debt. Some studies used the yield spread as a measure of cost of debt (Reeb *et al.*, 2001; Anderson *et al.*, 2003; Nikolaev and Van Lent, 2005; Deng *et al.*, 2007; Dhaliwal *et al.*, 2008; Ashcraft and Santos, 2009); these studies estimated the cost of debt as a function of company characteristics and issue-specific characteristics. On the other hand, some studies measured cost of debt as the realized cost of debt (Francis *et al.*, 2005; Gray *et al.*, 2009; Mosciarello *et al.*, 2011). The present study, as will be explained in the next sections, follows the method used by Francis *et al.* (2005), because of the difficulty of collecting data for the yield spreads for the eight years under investigation.

Following the literature (Francis *et al.*, 2005; Gray *et al.*, 2009; Mosciarello *et al.*, 2011), the cost of debt was measured by using the ratio of interest expenses (one line instrument in the accounts, disclosed within the financial expenses, collected from the OSIRIS database or companies' annual reports) in year t to the total debt (sum of short-term and long-term debt) at the beginning of year t (the end of year $t-1$). Interest expenses are nominal interest expenses and not real interest expenses since the data have not been deflated.

5.7 Model Specification: Independent Variable

The variable used as an independent variable was a dummy variable, coded 1 for all those numbers reported under IAS/IFRS, and 0 otherwise. Specifically, as mentioned in Section 4.5.1, this dummy variable takes into consideration voluntary adopters, on-time adopters and late adopters. Table 4.1 lists the results of analysis of the total number of observations in each group (IAS/IFRS and Greek GAAP).

5.8 Model Specification: Control Variables

Throughout the literature, the assessment of the cost of debt is connected to the default risk: a negative relationship is reported between the cost of debt capital and the measures of the default risk (Fisher, 1959; Fung and Rudd, 1986; Sengupta, 1998). The following sections explain the expected relationship between the cost of debt capital and the measures of default risk.

5.8.1 Size

According to Vermaelen (1981), the size of a company can be considered as a proxy for information asymmetry, because small companies provide less information than large companies. Additionally, according to Titman and Wessels (1988), the larger the company, the lower the possibility of bankruptcy, which in turn means that lenders and underwriters can ask for lower risk premiums, and therefore larger companies face a lower cost of debt because of the lower information asymmetry and the lower possibility of bankruptcy. Following the literature, the proxy used in the present study for measuring size was the natural logarithm of total assets (Sengupta, 1998; Francis *et al.*, 2005; Nikolaev and Van Lent, 2005; Gray *et al.*, 2009; Orens *et al.*, 2010; Van Binsbergen *et al.*, 2010).

5.8.2 Leverage

According to Modigliani and Miller (1958), companies that report high leverage ratios face a higher risk of uncertainty. This suggests that companies with high leverage ratios are considered to be more risky than companies with low leverage ratios. The inclusion of leverage is consistent with previous research (Leftwich, 1981; Francis *et al.*, 2005)

that confirm that the lower the leverage, the lower the agency costs, which in turn lowers the cost of debt. The proxy used in the present study for measuring leverage was the ratio of total debt to total assets, to capture the ability of each company to repay its debt through its assets (Francis *et al.*, 2005; Ashcraft and Santos, 2009; Gray *et al.*, 2009).

5.8.3 Growth

Intangible assets are not secured, and their value can decrease quickly in the case of financial distress or bankruptcy (Titman and Wessels, 1988). This means that companies' ability to use debt financing will decline, which will lead them to equity financing. According to Titman and Wessels (1988), companies with high growth face higher agency costs because they can be more flexible when choosing future investments and when drawing capital from banks or bondholders. Consequently, if the company cannot collateralize the debt it raises, the debt will be more expensive, because a higher risk premium will be sought. Therefore, a negative relationship between cost of debt and growth is expected. The variable used in the present study for measuring growth was the market to book ratio (Francis *et al.*, 2005; Nikolaev and Van Lent, 2005; Ashcraft and Santos, 2009; Van Binsbergen *et al.*, 2010). The market to book ratio connects the market value of equity with the book value of equity. It has been argued that the market value of equity reflects the expectations of investors about the company's future profits, and the book value of equity represents past retained profits (McNichols *et al.*, 2010). Therefore, the market to book ratio *"is determined by both past and future investments, with the latter expected to be made optimally in light of anticipated future revenue opportunities"* (McNichols *et al.*, 2010, p. 2).

5.8.4 Earnings

Companies that report negative earnings have a tendency to manipulate their earnings in order to reassure potential investors about the companies' future performance (Brown, 2001). This means that, because of the increased uncertainty regarding the companies' future performance, lenders will ask for a higher risk premium, which in turn increases the cost of debt. Hence, it is expected that there will be a negative relationship between the cost of debt and negative earnings. The variable used in the present study for

measuring negative earnings was a dummy variable, coded 1 when companies reported negative earnings, and 0 otherwise (Nikolaev and Van Lent, 2005; Orens *et al.*, 2010).

According to Bhaduri (2002), companies with highly volatile earnings face a higher risk of being unable to meet their debt commitments, which in turn leads to a higher probability of financial distress. Additionally, investors and lenders cannot assess with certainty the future earnings of companies that report high earnings volatility (Graham *et al.*, 2005). Therefore, a positive relationship is expected between earnings volatility and the cost of debt. The variable used in the present study for measuring earnings volatility was the logarithm of the percentage change in earnings per share for year t versus earnings per share in year $t-1$ for each company (Orens *et al.*, 2010).

5.8.5 Industry

Orens *et al.* (2010) found that the cost of debt capital is related to the industry in which each company operates. Specifically, they found that industry classification had a higher effect on the cost of debt in North America than in Continental Europe, but both coefficients reported were statistically significant. To test for a significant relationship between industry classification and cost of debt in the Greek market, the following classification of 14 industries was used based on the sector to which each company belonged according to the ASE:

1: Utilities (2 companies)
2: Oil & Gas (2 companies)
3: Retail (8 companies)
4: Food & Beverage (21 companies)
5: Personal & Household Goods (31 companies)
6: Technology (20 companies)
7: Chemicals (10 companies)
8: Industrial Goods & Services (22 companies)
9: Basic Resources (12 companies)
10: Telecommunications (2 companies)
11: Travel & Leisure (11 companies)
12: Construction & Materials (22 companies)
13: Health Care (9 companies)
14: Media (9 companies).

5.8.6 Base rate

To control for changes in the base rate announced by the ECB, the base rate was also included as a control variable. The *Baserate* variable takes two values: the first value is the average base rate of all the observations whose the *IAS* variable takes the value zero (0) and is the same for all these observations (2.99) and the second value is the average base rate of all the observations whose the IAS variable takes the value one (1) and is the same for all the observations (3.00).

Table 5.1 summarizes the variables used as control variables for estimating the cost of debt, the proxies used for their measurement and the expected signs based on the justification provided above.

Variable	***Proxy***	***References***	***Expected sign***
Size	Natural logarithm of total assets	Nikolaev and Van Lent (2005); Orens *et al.* (2010); Sengupta (1998); Van Binsbergen *et al.* (2010)	Negative (-)
Leverage	Total debt to total assets	Ashcraft and Santos (2009); Francis *et al.* (2005); Orens *et al.* (2010)	Positive (+)
Growth	Market to book value	Ashcraft and Santos (2009); Francis *et al.* (2005); Nikolaev and Van Lent (2005); Van Binsbergen *et al.* (2010)	Negative (-)
$Volatility_{\Delta ear}$	Logarithm of percentage change in earnings	Orens *et al.* (2010)	Positive (+)
Loss	Dummy variable coded 1 when a company report negative earnings and 0 otherwise	Nikolaev and Van Lent (2005); Orens *et al.* (2010)	Negative (-)
Industry	Dummy variables	Anderson *et al.* (2003); Pitman and Fortin (2004)	————
Baserate	2.99 if the company reports under Greek GAAP 3.00 if the company reports under IAS/IFRS	----------	----------

Table 5.1: Table of the control variables used for the estimation of the cost of debt

Following the rationale of Orens *et al.* (2010), the effect of IAS/IFRS adoption on the cost of debt can be examined by using the following model:

$$CoD_{it} = \beta_0 + \beta_1 IAS + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 Growth_{it} + \beta_5 Loss_{it} + \beta_6 Volatility_{\Delta ear\,it} + \beta_7 Industry + \beta_8 Baserate + \varepsilon_{it}$$

where *CoD* is the cost of debt, *IAS* is a dummy variable coded 1 for all those numbers reported under IAS/IFRS and 0 otherwise, *Size* is measured by the natural logarithm of total assets, *Leverage* is the leverage measured by total debt to total assets, *Growth* is the growth measured by the market to book value ratio, *Loss* is a dummy variable coded 1 when companies reported negative earnings and 0 otherwise, $Volatility_{\Delta ear}$ is the logarithm of the percentage change in earnings per share for year *t* versus earnings per share in year *t*−1, *Industry* includes dummies for the industry classification, *Baserate* is the variable used to capture the effect of changes in the base rate for the Euro area announced by the ECB, β are the coefficients to be estimated, *i* is an index for companies and *t* is an index for the year.

5.9 Results

5.9.1 Descriptive statistics

As explained in Section 1.6 and Section 4.6.1, the dataset comprised 181 Greek companies (Table 5.2) that were listed on the ASE between 2001 and 2008. The dependent variable required the use of the year end and the year beginning data (previous year's end data). For this reason, information for 2000 was also used for the calculation of total debt. As in Chapter 4, companies that belonged to the insurance, financial and banking services sector or that were not listed throughout the eight years investigated were excluded. Another 35 companies were excluded because of the non-availability of data. The database had some missing data in particular for the three years from 2001 to 2003; therefore, the annual reports of the companies were also used. It was checked whether there was an agreement between the data provided by the database and the annual reports. The total number of observations was 1448.

Number of companies listed on the Athens Stock Exchange	**264**
Number of excluded companies belonging to the insurance, financial and banking services sector	37
Number of excluded companies not listed continuously over 2001-2008	11
Number of excluded companies with missing data	35
Total No of companies used	**181**

Table 5.2: Number of Greek companies used

Table 5.3 provides descriptive statistics regarding the variables' minimum, maximum, mean and standard deviation. More descriptive statistics are provided in the Appendix (Table 9).

As can be seen from Table 5.3, the average *Size* of the companies increased after the adoption of IAS/IFRS, from 12.72 to 13.06. This implies that more assets were recognized under IAS/IFRS or that they were measured at a higher value, possibly because IAS/IFRS is fair-value oriented. This is consistent with the findings of Athianos *et al.* (2005), who found a statistically significant increase in the average size of Greek companies after the adoption of IAS/IFRS. It also agrees with the result of Barth *et al.* (2008), who investigated the effects of IAS/IFRS adoption on earnings management in 21 countries and found that the average size of companies increased significantly after the adoption of IAS/IFRS.

N=1448	**Mean**		**Standard deviation**		**Min**		**Max**		**Test for difference in mean**
	Greek GAAP (N=676)	IAS/ IFRS (N=772)	Greek GAAP (N=676)	IAS/ IFRS (N=772)	Greek GAAP (N=676)	IAS/ IFRS (N=772)	Greek GAAP (N=676)	IAS/ IFRS (N=772)	
Size	12.72	13.06	1.29	1.31	10.11	10.10	16.23	16.45	11.29***
Leverage	0.30	0.41	0.18	0.21	0.00[1]	0.00[1]	0.79	1.19	8.01***
Growth	3.73	2.48	10.73	3.88	-23.60	-13.01	106.22	27.68	4.73***
Loss	0.30	0.17	0.46	0.37	0	0	1	1	-6.08***
$Volatility_{\Delta ear}$	-0.35	0.10	4.57	2.17	-61.7	-7.67	29.4	12.90	-1.92*
CoD	0.047	0.042	0.07	0.06	0.00[1]	0.00[1]	0.23	0.25	1.89*
Baserate	2.99	3.00	0.00	0.00	2.99	3.00	2.99	3.00	-

Table 5.3: Descriptive statistics

Note: Greek GAAP includes all those numbers reported under Greek GAAP, IAS/IFRS includes all those values reported under IAS/IFRS, *Size* is the natural logarithm of total assets, *Leverage* is the total debt to total assets ratio, *Growth* is the market to book ratio, *Loss* is a dummy variable coded 1 when the reported earnings are negative and 0 otherwise, $Volatility_{\Delta ear}$ is the change in earnings measured as the logarithm of the percentage change in earnings per share for year *t* versus earnings per share in year *t-1* for firm each company, *CoD* is the cost of debt and *Baserate* is the variable used to capture the effect of changes in the base rate for the Euro area announced by the ECB.
1: the values were low and they were rounded to zero (0).
*, **, and *** represent the 10%, 5%, and 1% levels of significance, respectively, for a two-tailed test

Table 5.3 shows that *Leverage* increased when companies switched from Greek GAAP to IAS/IFRS. This implies that the debt financing of the Greek companies increased after the adoption of IAS/IFRS, in line with the findings of Paananen (2008), who found a higher average leverage for Swedish companies after the adoption of IAS/IFRS. The result is also consistent with the results of Athianos *et al.* (2005) and Iatridis and Rouvolis (2010), who found that the leverage of Greek companies increased when they adopted IAS/IFRS.

Table 5.3 also shows that the average value of the dummy variable for Greek companies reporting negative earnings (*Loss*) decreased from 0.30 to 0.17 after the adoption of IAS/IFRS, and this difference was statistically significant at the 1% significance level. This implies that after the adoption of IAS/IFRS only 17% of the Greek companies under investigation reported negative earnings. $Volatility_{\Delta ear}$ also increased in the years after the adoption of IAS/IFRS, indicating that Greek companies tended to smooth their earnings less after their adoption. The increase in earnings volatility is consistent with the findings of Iatridis and Rouvolis (2010), who also found that Greek companies smoothed their earnings more under Greek GAAP than they did under IAS/IFRS.

Year	Mean	Standard deviation	Min*	Max
2001	0.050	0.081	0.00	0.336
2002	0.043	0.070	0.00	0.226
2003	0.047	0.071	0.00	0.220
2004	0.047	0.060	0.00	0.249
2005	0.037	0.070	0.00	0.218
2006	0.042	0.067	0.00	0.224
2007	0.045	0.067	0.00	0.221
2008	0.044	0.063	0.00	0.217

Table 5.4: Descriptive statistics of cost of debt on a year by year basis

*: the numbers reported are low and therefore rounded to zero

The average value of the cost of debt (*CoD*) also decreased after the adoption of IAS/IFRS (from 0.047 to 0.042), indicating that the borrowing costs of the Greek companies were lower after the adoption of IAS/IFRS, possibly because of the increased transparency of the accounting information that resulted from their adoption. Table 5.4 is a breakdown of the cost of debt on a year by year basis.

Table 5.5 shows the average base rate per year for the Euro area announced by the ECB from 2001 to 2008. As can be seen in the table, the lowest base rate was reported in 2005, and the highest base rate was reported in 2001.

Year	***Average base rate***
2001	4.2500
2002	3.2083
2003	2.2500
2004	2.0000
2005	1.9375
2006	2.6250
2007	3.8542
2008	3.8542

Table 5.5: Average base rate per year for the Euro area

Source: European Central Bank (2012)

According to Guajarati (2003), in the presence of multicollinearity, the estimated beta coefficients may be biased. Additionally, some of the independent variables may be

dropped from the model because it cannot isolate the effect that each independent variable may have on the dependent variable. Therefore, a test was run for multicollinearity.

The presence of multicollinearity can be tested through the use of the VIF or through the correlation matrix. The VIF reveals the degree to which each independent variable is able to explain the other independent variables used in the model. According to Guajarati (2003), an acceptable level of VIF is under 10. The correlation matrix reveals whether or not any two independent variables are correlated.

	IAS	***Size***	***Leverage***	***Growth***	***Volatility$_{\Delta ear}$***	***Loss***	***first***	***second***	***third***	***fourth***	***fifth***	***sixth***	***seventh***
IAS	1.000												
Size	0.757***	1.000											
Leverage	0.131***	0.126***	1.000										
Growth	-0.069***	-0.211***	-0.036	1.000									
Volatility$_{\Delta ear}$	0.062**	0.025	-0.036	-0.012	1.000								
Loss	-0.035	-0.029	0.134***	-0.008	-0.008	1.000							
first	0.04*	0.02	0.297	0.02	0.015	-0.122***	1.000						
second	0.06**	0.02	-0.283	0.05**	0.014	-0.117***	-0.02	1.000					
third	0.02	-0.03	-0.07	0.01	-0.003	-0.028	-0.02	-0.01	1.000				
fourth	0.04	-0.02	0.027***	0.08***	0.005	-0.006	-0.05*	-0.02	-0.02	1.000			
fifth	0.06**	-0.04	0.027***	0.13***	0.004	0.042	-0.08***	-0.04	-0.70	-0.08***	1.000		
sixth	-0.01	-0.02	0.036***	0.01***	-0.092***	-0.005	-0.05**	-0.02	-0.02	-0.05**	-0.08***	1.000	
seventh	-0.02	-0.03	0.05**	0.13***	0.004	0.027	-0.08***	-0.03	-0.04	-0.07***	-0.13***	-0.08***	1.000
eighth	-0.01	-0.01	0.01	0.05**	0.009	-0.101***	-0.06**	-0.02	-0.03	-0.05**	-0.09***	-0.05**	-0.08***
ninth	-0.02	-0.04	0.02	0.13***	0.003	-0.038	-0.08***	-0.04	-0.04	-0.08***	-0.13***	-0.08***	-0.13***
tenth	-0.01	-0.03	0.041	0.10***	0.002	0.039	-0.06**	-0.03	-0.03	-0.06**	-0.10***	-0.06**	-0.09***
eleventh	-0.01	-0.01	0.131***	0.04	0.015	0.005	-0.02	-0.01	-0.01	-0.02	-0.04	-0.02	-0.04
twelfth	-0.01	-0.03	0.077***	0.09***	-0.003	0.012	-0.06**	-0.03	-0.03	-0.05**	-0.09***	-0.06**	-0.09***
thirteenth	-0.02	-0.16***	-0.015	0.08***	0.005	0.051*	-0.08***	-0.04	-0.04	-0.08***	-0.13***	-0.08***	-0.13***
Baserate	0.13	0.05	0.051*	0.36	-0.02	-0.04	-0.03	-0.24	0.01	0.04	0.01	-0.01	-0.03

Table 5.6: Correlation matrix and Variance Inflation Factor (VIF)

Note: *first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth* are dummy variables used for the different industries and *VIF* is the Variance Inflation Factor. The rest of the variables have been defined in table 5.3

*, **, and *** represent the 10%, 5%, and 1% levels of significance

	eighth	*ninth*	*tenth*	*eleventh*	*twelfth*	*thirteenth*	*Baserate*	*VIF*
IAS								2.40
Size								2.68
Leverage								1.79
Growth								1.09
Volatility $_{\Delta ear}$								1.02
Loss								1.05
first								1.45
second								1.32
third								1.18
fourth								1.18
fifth								1.27
sixth								1.13
seventh								1.27
eighth	1.000							2.23
ninth	-0.09***	1.000						1.24
tenth	-0.06**	-0.10***	1.000					1.11
eleventh	-0.02	-0.04	-0.03	1.000				1.08
twelfth	-0.06**	-0.09***	-0.07***	-0.03	1.000			1.11
thirteenth	-0.09***	-0.14***	-0.14***	-0.04	-0.09***	1.000		1.16
Baserate	0.05	-0.02	-0.01	-0.01	0.10	-0.04	1.000	1.48

Table 5.6: Correlation matrix and Variance Inflation Factor (VIF), continued

Note: *first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth* are dummy variables used for the different industries and *VIF* is the Variance Inflation Factor. The rest of the variables have been defined in table 5.3

*, **, and *** represent the 10%, 5%, and 1% levels of significance

As can be seen from Table 5.6, the VIF for all the variables was under 10, which indicates that there was no multicollinearity in the model. As can also be seen from the table, size and leverage were positively correlated with the dummy variable used for the adoption of IAS/IFRS, indicating that after their adoption the size of the Greek companies increased, along with their leverage level.

5.9.2 Estimation results

Panel and pooled data analysis techniques were used to determine the most appropriate technique that best explains the model. Panel data analysis required the use of fixed and random effects techniques.

In the pooled data analysis, which was estimated by OLS, all the observations were placed together in the regression. This meant that the estimated beta coefficients would capture no time or company effects but would capture the overall influence of the independent variables on the dependent variable. In the pooled data technique, the time and company effects are captured by the error term. This method is appropriate only when there is no time or company effect.

When there are time and company effects, these require the use of panel data techniques (Gujarati, 2003). The use of panel data analysis captures company and time effects and helps researchers to minimize problems that may occur when using pooled data analysis, and the coefficient estimations are robust. As mentioned above, panel data analysis requires the use of fixed and random effects techniques.

Fixed effects techniques enable researchers to capture effects that cannot be captured when using pooled data analysis. Only company effects are captured by the intercept of the model, meaning that the intercept may differ for each company but remain constant over time. The method used for estimating fixed effects was OLS. On the other hand, the random effects technique captures both company and time effects in the error term. The method used for estimating random effects was generalized least squares (GLS).

After running the regression using the fixed and random effects techniques, a Hausman test was run, which tested the null hypothesis that the coefficients estimated by the use

of fixed and random effects were similar. A statistically significant Hausman test would indicate that the best technique to use would be the fixed effects technique.

	CoD			***CoD***
IAS	-0.3705 (-8.28)***		***fourth***	-0.0129 (-1.92)*
Size	-0.02714 (-1.76)*		***fifth***	-0.0085 (-1.83)*
Leverage	0.25873 (2.53)**		***sixth***	-0.0071 (-0.09)
Growth	-0.0108 (-0.92)		***seventh***	-0.00799 (-1.61)
Volatility	0.01915 (2.49)**		***eighth***	0.0561 (2.14)**
Loss	-0.00048 (-1.38)		***ninth***	-0.0054 (-1.20)
first	-0.0255 (-0.96)		***tenth***	-0.0074 (-1.23)
second	0.0062 (0.90)		***eleventh***	-0.0011 (-0.06)
third	-0.0155 (-0.92)		***twelfth***	-0.0034 (-0.87)
Constant	0.05859 (4.25)***		***thirteenth***	0.00059 (0.21)
			Baserate	0. 2358 (10.58)***
R^2	47.14			
P-value	0.000			
Hausman Test	3.18			
N	1448			

Table 5.7: Estimation results

Note: All the variables have been defined in tables 5.3 and 5.4.

*, **, and *** represent the 10%, 5%, and 1% levels of significance

The model developed in Sections 5.6-5.8 is linear. The assumptions of a linear regression are that each of the independent variables has a linear relationship with the dependent variable, the residuals of the regression are normally distributed, and there is no heteroscedasticity and no serial correlation of the residuals. To detect non-normally distributed residuals and heteroscedasticity, robust regressions were run in STATA. Table 5.7 includes a summary of the results produced by STATA, and the complete table is provided in the Appendix (Table 10).

Table 5.7 shows the results obtained from the regressions for 1448 observations. The random effects technique was found to explain the data better than the fixed effects technique, because the result of the Hausman test was insignificant (Table 10, Panel D, Appendix).

As can be seen from Table 5.7, the GLS model was characterized by an R^2 of 47.14% and reported a significant and negative relationship between the cost of debt and the binary variable (*IAS*) used to measure IAS/IFRS adoption. Specifically, the reported coefficient of the dummy variable was −0.3705 and was statistically significant at the level of 1%. This finding supports the argument that after the adoption of IAS/IFRS, Greek companies borrowed at better terms, reducing the cost of debt financing (Kim *et al.*, 2010).

As mentioned in Section 5.5, the negative and statistically significant relationship between IAS/IFRS adoption and the cost of debt justifies the argument that companies that adopted IAS/IFRS experienced a decrease in the cost of debt financing because of the increased quality and quantity of accounting disclosures, which meant increased transparency (Covrig *et al.*, 2007). In addition, it supports the view that the adoption of higher-quality accounting standards may reduce the mis-coordination between entities and suppliers, which in turn enables the entities to borrow at better terms (Lambert *et al.*, 2007).

This finding agrees with that of Sengupta (1998), who also reported a negative and statistically significant relationship between the cost of debt and higher disclosure quality. Specifically, he provides evidence supporting the argument that *"a policy of timely and detailed disclosures reduces lenders' and underwriters' perception of default risk for the disclosing firm, reducing its cost of debt"* (Sengupta, 1998, p. 459). The finding is also in line with that of Orens *et al.* (2010), who found a significant and negative relationship between the cost of debt and the mandatory adoption of IAS/IFRS in Continental Europe. In particular, Orens *et al.* included companies from both Continental Europe and North America. Although they reported no significant relationship between the two abovementioned variables in the case of North America, when the latter was investigated as a separate sample, they did report a statistically significant and negative relationship between the two variables when the regression

included data for both Continental Europe and North America. The coefficient was higher in the case of Continental Europe, indicating a higher effect of the adoption of IAS/IFRS on the cost of debt in the case of Europe.

Table 5.7 also shows that some of the control variables in the model correlated significantly with the cost of debt (*CoD*). In particular, as predicted, *Size* showed a negative correlation with the cost of debt (*CoD*). The variable *Loss*, which represents all those companies that reported negative earnings, correlated negatively with *CoD*, but this relationship was found to be insignificant. The market to book value used to measure growth (*Growth*) was also negatively correlated with the cost of debt, but was not statistically significant. These results are consistent with those of Orens *et al.* (2010), who also found a negative but statistically insignificant relationship between growth and cost of debt. In the present study, *Volatility* was positively correlated with the cost of debt and statistically significant at the level of 5%. *Leverage* and cost of debt were positively and significantly correlated. This finding supports the view that highly leveraged companies face a higher risk of uncertainty and higher agency costs which in turn increases the cost of debt financing. *Baserate* was found to be statistically significant at the 1% level, indicating that an increase in the base rate by the ECB increases the lending interest rate and therefore the cost of debt.

These findings are in line with the hypothesis that the adoption of a higher quality of accounting regulations (IAS/IFRS) with respect to the Greek GAAP, which, according to Ding *et al.* (2007), are of lower quality, plays an important role in estimating the cost of debt financing.

5.9.3 Robustness

To check whether or not the model suffered from endogeneity, a Hausman Specification Test was run (see Section 4.6.2). The additional proxy used is the Operating cash flows (*Ocf*) since it is found to be related with the accounting regime used (Spathis and Georgakopoulou, 2007). The results (Table 11, Panel B, Appendix) show that the model did not suffer from endogeneity, because the p-value of the estimated residuals was not significantly different from 0 (p-value = 0.6766).

To check that the proxies chosen for the different variables used did not yield different results from other variables used in the literature, another regression was run using the natural logarithm of sales as a proxy for size (Ashcraft and Santos, 2009; Mosciarello *et al.*, 2011), and the standard deviation of net income before extraordinary items divided by total assets as a proxy for earnings variability (Gray *et al.*, 2009). The descriptive statistics for the alternative variables used are shown in Table 12 of the Appendix. The results (Table 13, Appendix) show no significant differences between the proxies chosen for the main analysis of this chapter.

5.10 Conclusion

The purpose of this chapter was to investigate the effects of IAS/IFRS adoption on the cost of debt of Greek companies. Although several papers focus on the effects of the adoption of IAS/IFRS on equity capital, few papers focus on the effect of their adoption on the debt capital. The empirical findings regarding the implications of IAS/IFRS adoption on debt markets are limited; therefore, evaluation of the effects of their adoption on debt markets is not possible. For this reason, this chapter attempted to shed light on the effects of IAS/IFRS adoption on the cost of debt in the emerging market of Greece.

Concerning the effects of IAS/IFRS adoption on debt, the literature documents a higher sensitivity of credit ratings regarding the default factor (Wu and Zhang, 2009) for all those companies that switched voluntarily to IAS/IFRS, as well as lower cost of debt (Florou and Kosi, 2009). According to Kim *et al.* (2010), there is also a negative relationship between the voluntary adoption of IAS/IFRS and the level of loan rates charged.

It was hypothesized that the cost of debt and the adoption of IAS/IFRS are related because the IAS/IFRS increased the quality as well as the quantity of accounting disclosures (Covrig *et al.*, 2007); therefore, the uncertainty regarding a company's default risk was reduced, which in turn allowed lenders to ask for lower risk premiums. An additional argument in support of this hypothesis is that IAS/IFRS are of a higher quality than Greek GAAP (Ding *et al.*, 2007); therefore, the adoption of IAS/IFRS may have reduced the mis-coordination between companies and suppliers, which in turn

enabled the companies to borrow at better terms than they did before the adoption of IAS/IFRS. In addition, the different requirements of new rules, or the different measurements of the different instruments, may have affected the cost of debt of Greek companies. The data used in the present study included information about 181 Greek companies that were listed on the ASE during 2001–2008.

The results of this chapter reveal a negative and statistically significant relationship between the adoption of IAS/IFRS and the cost of debt. This finding supports the view that the disclosure quality of a company affects lenders' decisions when estimating the company's default risk. Other variables remaining constant, companies that adopted the IAS/IFRS were charged lower rates because the accounting disclosures produced under the IAS/IFRS are perceived to be of a higher quality than those produced under the Greek GAAP.

The importance of this chapter is that it provides evidence that IAS/IFRS adoption has benefited not only the cost of equity capital (as has been shown by previous studies) but also the cost of debt capital. The finding that the interest paid by the companies was statistically significant and negatively related to IAS/IFRS adoption provides researchers with more information to better understand the components of disclosure quality.

As explained in Section 5.5, the accounting cost of debt may have been affected by two changes: the change in accounting treatment and the change in the interest rate charged. Although the results show that the cost of debt of Greek companies decreased after the adoption of IAS/IFRS, this chapter does not attempt to single out the effects of each of the above factors. Therefore, future research may focus on isolating each cause.

Chapter 6
The Effect of IAS/IFRS Adoption on Gearing

6.1 Introduction

It has been argued that better quality accounting disclosure enables financial analysts to better understand the financial performance of a company, which in turn enables them to produce reliable forecasts about the company's future performance (Lang and Lundholm, 2000). According to Bushman and Smith (2001), companies that disclose more information in their annual reports tend to exhibit higher stock returns because the increased disclosure alters the incentives to share and collect information, which in turn affects the flow of both private and common information and therefore the stock returns of a company. It may also be the case that IAS/IFRS adoption enabled companies to access external capital (Covrig *et al.*, 2007), particularly from cross-border investment flows and international capital markets. Although much research has been done on the impacts of IAS/IFRS adoption, most researchers have focused on the impacts of IAS/IFRS adoption on cost of equity (Barth *et al.*, 2008; Karamanou and Nishiotis, 2009; Iatridis and Vilahi, 2010; Li, 2010); as mentioned in Chapter 3, little attention has been paid to the effects of IAS/IFRS adoption on debt markets (Florou and Kosi, 2009; Wu and Zhang, 2009; Kim *et al.*, 2010) and, consequently, to the effects of IAS/IFRS adoption on gearing. Therefore, as mentioned in Section 5.1, it is essential to study the effects of IAS/IFRS adoption on gearing in order to obtain a clear picture of the economic consequences.

Kim *et al.* (2010), using as a sample companies from 40 countries (including Greece), found that banks charged lower interest rates to all those companies that switched to IAS/IFRS voluntarily, compared with those that did not. They also found that the borrowing terms for all the companies that did not adopt IAS/IFRS were stricter than those for the companies that did adopt IAS/IFRS. Athianos *et al.* (2005), Covrig *et al.* (2007), Paananen (2008) and Iatridis and Rouvolis (2010) found that gearing increased when companies adopted IAS/IFRS. Although an increase in gearing (also known as leverage) has been reported, no reasons have been given for its increase.

The motivation of the present chapter relates to whether gearing increased after the adoption of IAS/IFRS in Greece. It has been argued that IAS/IFRS adoption reduces a company's uncertainty and risk and, therefore, improves its credibility. Additionally,

the transition to IAS/IFRS is costly (Iatridis and Dalla, 2010), and taking into consideration that the largest proportion of Greek companies raise capital through bank loans (Bellas and Tzovas, 2008), and that companies can take advantage of the lower interest rates charged (Kim *et al.*, 2010), in addition to the fact that some instruments were reclassified under IAS/IFRS (see Section 5.2), it is hypothesized that after the adoption of IAS/IFRS in Greece gearing increased.

Similarly to Chapter 4 and Chapter 5, the data included information about 181 Greek companies that were listed on the ASE during the period under investigation (2001-2008). Fixed effects and random effects techniques as well as a Hausman test were used to determine the best technique to best explain the data. The regressions run were robust regressions to detect for non-normality, heteroscedasticity and serial correlation of the residuals.

Gearing was measured with three proxies to increase the robustness of the results: total debt to total assets (Sogorb, 2002; Chen, 2004; Huang and Song, 2006; Delcoure, 2007; Eriotis *et al.*, 2007; Crnigoj and Mramor, 2009; Teker *et al.*, 2009), short-term debt to total assets (Sogorb, 2002; Delcoure, 2007; Abor, 2008) and long-term debt to total assets (Sogorb, 2002; Chen, 2004; Huang and Song, 2006; Delcoure, 2007; Abor, 2008).

Size, asset structure, profitability, non-debt tax shields, growth, earnings volatility, managerial ownership and industry classification were used as control variables because they have been reported as determinants of gearing (Titman and Wessels, 1988; Chiarella *et al.*, 1991; Ozkan, 2001; Sogorb, 2002; Bauer, 2004; Bevan and Danbolt, 2004; Abor, 2008; Akhtar and Oliver, 2009; Crnigoj and Mramor, 2009; Gill *et al.*, 2009; Teker *et al.*, 2009).

The dummy used to measure IAS/IFRS adoption was found to be statistically significant and positively related to gearing. The results also indicate that large and more-profitable companies with low growth, fewer non-debt tax shields, less-volatile earnings and less managerial ownership report higher levels of debt financing. Industries such as Food & Beverage, Personal & Household Goods, Technology and Construction & Materials report higher levels of gearing.

The remainder of this chapter is structured as follows. Development of the hypothesis is presented in Section 6.2. Section 6.3, Section 6.4, Section 6.5 and Section 6.6 describe the model specifications. Section 6.7 analyses the results obtained, and Section 6.8 presents a conclusion to the chapter's findings.

6.2 Development of Hypothesis

As shown in Chapter 4, adoption of IAS/IFRS improved the quality of financial reporting in Greece. Therefore, a company's uncertainty and potential risk may be reduced (Ball *et al.*, 2003), which *"enhances the credibility and the borrowing bargain power of firms"* (Iatridis, 2010, p. 170) and subsequently their gearing levels.

However, the transition from local GAAP to IAS/IFRS may be costly (Iatridis and Dalla, 2011), particularly when the accounting regulations differ significantly from those suggested by IAS/IFRS. For this reason, companies would seek to raise capital or obtain debt financing to smooth their transition to IAS/IFRS and *"adjust their financial reporting and information systems"* (Iatridis and Dalla, 2011, p. 290). Greek companies' financing is based mostly on the loans provided by the banks (Bellas and Tzovas, 2008). Therefore, the costly transition for Greek GAAP to IAS/IFRS may be a factor in the increase of gearing.

Additionally, IAS/IFRS adoption introduced changes in the measurement and recognition of rules that may have increased gearing either through an increase in the numerator or a decrease in the denominator of the fraction used for estimating gearing (s mentioned in section 6.1 gearing is calculated as the fraction of total debt to total assets, long-term debt to total assets and short-term debt to total assets). The following sections describe the introduction of new rules that may have increased gearing.

6.2.1 IAS 19: Employee benefits

The objective of IAS 19 is to specify the disclosure practices and the accounting policies followed within a company regarding the benefits of its employees. Employee benefits are all forms of consideration given by an entity in exchange for services rendered by employees. Under IAS 19, all companies must recognize the cost of

providing employee benefits in the period in which the benefit is earned by an employee, rather than when it is paid or payable (IAS PLUS, Deloitte, 2012b).

In contrast, under Greek GAAP, companies were able to recognize employee benefits only for those employees who were due to retire during the following financial year, which allowed the companies to report higher shareholders' equity. Moreover, few disclosures were required, meaning that Greek companies did not need to recognize their liabilities explicitly. As mentioned above, the introduction of IAS 19 required all companies to recognize defined benefit liabilities for all their employees. Thus, the adoption of IAS 19 is expected to have increased the liabilities reported in the balance sheet of the investigated Greek companies, resulting in an increase of gearing.

6.2.2 IAS 32: Financial instruments – presentation

According to IAS 32, an instrument may be classified as equity if the instrument does not include

(a) cash,

(b) an equity instrument of another entity,

(c) contractual right (obligation):

- (i) to receive (deliver) cash or another financial asset from another entity; or
- (ii) to exchange financial assets or financial liabilities with another entity under conditions that are potentially favourable to the entity; or

(d) a contract that will or may be settled in the entity's own equity instruments and is:

- (i) a non-derivative for which the entity is or may be obliged to receive (deliver) a variable number of the entity's own equity instruments; or
- (ii) a derivative that will or may be settled other than by the exchange of a fixed amount of cash or another financial asset for a fixed number of the entity's own equity instruments. For this purpose the entity's own equity instruments do not include instruments that are themselves contracts for the future receipt or delivery of the entity's own equity instruments (IFRS, 2012).

Therefore, under IAS/IFRS, preference shares are classified as liabilities.

In contrast, under Greek GAAP, preference shares constituted part of the equity (Tsalavoutas, 2009). The different conditions that IAS/IFRS pose on the classification of an instrument as equity are expected to have decreased equity in Greece and instead increased liabilities. Therefore, gearing would also be affected.

6.2.3 IAS 37: Provisions, contingent liabilities and contingent assets

As mentioned in Section 2.4.3, Greek companies may be subjective on which provisions they recognize and disclose in their annual reports. Specifically, there is no clear differentiation between contingent liabilities and provisions under Greek law. It does not identify any recognition criteria for liabilities; it simply requires Greek companies to recognize liabilities for any definable risk. This means that Greek companies are able to decide whether or not they recognize provisions.

In contrast, IAS 37 requires the recognition of provisions as well as contingent liabilities and contingent assets by setting specific criteria for the identification of each of them. This means that, after the adoption of IAS/IFRS, Greek companies were unable to be subjective and were required to recognize all provisions. This would have resulted in an increase in the recognition of liabilities and would in turn have increased gearing.

Therefore, the following is hypothesized:

H3: *Gearing increased after the adoption of IAS/IFRS in Greece.*

Gearing may have increased due to different calculations (e.g. debts calculated under IAS/IFRS are different from under Greek GAAP or due to higher quality of information under IAS/IFRS, leading to lower cost of capital; as a result, companies are able to borrow more, or due to a combination of the two aforementioned factors. The present thesis does not differentiate between these three reasons.

6.3 Model Specification: Definitions of Gearing

The measurement of gearing (also called leverage) has been an issue for many years. The concept of gearing has been used widely, but differing views have been expressed on its definition (Ghandhi, 1966). The following sections outline the most common definitions.

6.3.1 Balance sheet or stock measures

Balance sheet or stock measures are based on numbers calculated directly from the balance sheet of the companies or from the companies' market valuation. According to these measures, gearing is calculated as the ratio of debentures and preferred shares to the total equity of the company or as the ratio of the market valuation of debentures and preferred shares to the market valuation of the company's equity (Modigliani and Miller, 1958). Bowman (1980) defines gearing as the ratio of debt to equity and attempted to estimate its appropriate measurement by comparing the market value and book value measurement of gearing.

6.3.2 Income statement or flow measures

Income statement or flow measures are based on numbers calculated from the income statements of companies. The aim of these measures is the measurement of gearing through the various contractual payments that may burden a company's total income (Tew and Henderson, 1959). The simplest measure in this category calculates gearing as the ratio of total dividend obligations on preferred shares and total interest obligations on debentures to the total income of the company.

6.3.3 Rate of return measures

Rate of return measures are based on a comparison of the rates of return on various types of structured capitalization. Specifically, this category calculates gearing as *"the ratio of the rate of return on equity to the rate of return on total capitalization"* (Ghandhi, 1966, p. 719).

Also in this category belongs Breuer's (2002, p. 225) definition of gearing as *"the magnification of the rate of return on a position or investment beyond the rate obtained by a direct investment of own funds in the cash market"*; he suggests that, to measure correctly the gearing level of an institution, off-balance sheet and on-balance sheet gearing should be taken into consideration.

Ghandhi (1966) made estimations of the results of calculating gearing based on the three definitions mentioned above, and found it unlikely that the different measures would yield different results, by showing that each measure could be expressed as a function of one of the other measures. Table 6.1 lists various proxies that have been used in the more recent literature as measures for gearing.

Variable	***Proxy***	***References***
Gearing	*total debt to total assets*	Chen (2004); Crnigoj and Mramor (2009); Delcoure (2007); Eriotis *et al.* (2007); Huang and Song (2006); Sogorb (2002); Teker *et al.* (2009)
	short-term debt to total assets	Abor (2008); Delcoure (2007); Sogorb (2002)
	long-term debt to total assets	Abor (2008); Chen (2004); Delcoure (2007); Huang and Song (2006); Sogorb (2002)
	$\frac{long\ term\ debt}{long\ term\ debt + market\ value\ of\ equity}$	Akhtar and Oliver (2009)
	long-term debt to market value of equity	Chang *et al.* (2009); Chiarella *et al.* (1991); Titman and Wessels (1988)
	short-term debt to market value of equity	Chang *et al.* (2009); Chiarella *et al.* (1991); Titman and Wessels (1988)
	convertible debt to market value of equity	Chang *et al.* (2009)
	long-term debt to book value of equity	Chiarella *et al.* (1991); Titman and Wessels (1988)
	short-term debt to book value of equity	Chiarella *et al.* (1991); Titman and Wessels (1988)

Table 6.1: Proxies used for the measurement of gearing in the literature of capital structure

6.4 Model Specification: Dependent and Independent Variables

The present chapter uses three proxies for the measurement of gearing. The first is measured as the total debt to total assets, the second as the short-term debt to total assets and the third as the long-term debt to total assets.

The variable used as an independent variable is a dummy variable coded 1 for all those numbers reported under IAS/IFRS and 0 otherwise. Specifically, as mentioned in Section 4.5.1, this dummy variable takes into consideration voluntary adopters, on-time adopters and late adopters. Table 4.1 lists the total numbers of observations in each group (IAS/IFRS and Greek GAAP).

6.5 Model Specification: Control Variables

The Modigliani–Miller theory suggests that in an efficient market, in the absence of taxes, asymmetric information and bankruptcy costs, the value of a company is not affected by the way it is financed (Modigliani and Miller, 1958). In the real world, however, markets are not perfect, which means that a company's optimal capital structure is affected by bankruptcy costs, taxes, agency costs and the signalling effect. Jensen and Meckling (1976) suggest that each company can be described in terms of several principal–agent relationships, which include costs associated with gearing, as an agent might not act in a consistent way with a principal's interest. Principals will attempt to use monitoring devices to protect themselves, through the use of protective covenants that limit agents' activities, and will increase financing costs. According to Van der Wijst (1990), information costs are also a determinant of the financial structure of a company, particularly a small one. Small companies suffer from high costs of providing information to outside investors, mostly because *"their expertise and knowledge is intangible and hard to quantify"* (Van der Wijst, 1990, p. 58).

The following sections explain the variables found throughout the literature to affect capital structure, and are therefore used as control variables in the present chapter.

6.5.1 Size

Size can be considered as a proxy for the information asymmetry within a company. The information provided to the managers and the outside investors of a company differs. According to Kadapakkam *et al.* (1998), investors are more interested in large companies, and thus they are more willing to provide information to large companies than small companies. In other words, *"informational asymmetries between insiders in a firm and the capital markets are lower for large firms. So large firms should be more capable of issuing informationally sensitive securities like equity, and should have lower debt"* (Rajan and Zingales, 1995, p. 1457).

On the other hand, the size of the company is associated with its potential bankruptcy costs, as larger companies have a lower probability of bankruptcy (Titman and Wessels, 1988). Because the probability of bankruptcy is lower for larger companies, they are more able to access debt financing by borrowing at lower interest rates. Therefore, according to the trade-off theory (see Section 5.2.2), the size of a company is positively associated with gearing. In the present chapter, the proxy used for the measurement of size is the natural logarithm of total assets (Titman and Wessels, 1988; Sogorb, 2002; Abor, 2008; Akhtar and Oliver, 2009).

6.5.2 Asset structure

Rajan and Zingales (1995) argue that tangible assets have a higher liquidation value, which means that they can be used as a guarantee for debt in case of bankruptcy. Companies with higher level of tangible assets face lower risk of bankruptcy, so they are able to borrow at lower risk premiums. According to Jensen and Meckling (1976), the shareholders of a highly leveraged company may attempt to "seize" capital from the bondholders of the company, which will increase the conflict between them. If the debt is secured, then the borrower is not able to use the funds for any reason other than a specified project, which will reduce the conflict between shareholders and bondholders (agency costs) and consequently the cost of debt. Therefore, according to the trade-off theory, it is expected that asset structure and gearing will be positively related.

According to the pecking order theory, gearing and asset structure are also positively related. This proposition is based on the argument that companies with more tangible assets are more able to raise debt financing at a more attractive rate (Myers and Majluf,

1984). In the present chapter the fixed tangible assets to total assets ratio is used as a measurement of asset structure (Chiarella *et al.*, 1991; Sogorb, 2002; Bauer, 2004; Bevan and Danbolt, 2004; Abor, 2008; Akhtar and Oliver, 2009; Crnigoj and Mramor, 2009; Gill *et al.*, 2009; Teker *et al.*, 2009).

6.5.3 Profitability

Profitability is also believed to play a key role in capital structure. According to the pecking order theory, there is a negative association between profitability and gearing, because companies with high profitability are able to raise capital through retained earnings, which in turn results in lower gearing (Myers and Majluf, 1984). The use of retained earnings has no adverse selection problem, as opposed to debt and equity financing, which makes retained earnings the cheapest method of financing. However, when companies must access external capital, they prefer debt to equity because debt is associated with lower information costs.

On the other hand, according to Modigliani and Miller (1963), companies prefer debt to equity financing, for tax considerations. Thus, companies that report a high level of profitability would employ more debt in order to increase the value of the debt tax shield. Additionally, companies with high profitability are more inclined to use debt financing because of agency and bankruptcy costs: the probability of being subject to bankruptcy is lower for companies with high profitability, because they can more easily pay back their debt obligations. For this reason, and with regard to their need to maximize the tax shield, companies with high profitability will turn to more debt financing. Therefore it is expected that gearing and profitability will be positively related. The variable used in the present chapter for the measurement of profitability is the return on assets ratio (Chiarella *et al.*, 1991; Sogorb, 2002; Bauer, 2004; Abor, 2008; Akhtar and Oliver, 2009; Chang *et al.*, 2009; Crnigoj and Mramor, 2009; Teker *et al.*, 2009).

6.5.4 Non-debt tax shields

Debt and equity are treated differently: "since interest payments are tax deductable and dividends are not, the fiscal regime is generally considered to favour debt", and therefore there may be a *"positive tax incentive for corporate debt financing"* (Van der

Wijst, 1990, p. 56). The absence of costs that may balance this tax incentive for corporate debt financing may lead to its maximal use. According to Robichek and Myers (1965) and Baxter (1967), bankruptcy and reorganization are two costs that may balance the tax incentive for corporate financing. The higher the debt level, the higher the costs, which in turn increase the probability of bankruptcy. A high probability of bankruptcy turns a company away from more debt financing, a process that eventually will balance the tax advantage. Non-debt tax shields are expected to be negatively related to the dependent variable (gearing), because they can reduce the tax benefits from interest payments. Following Titman and Wessels (1988) and Ozkan (2001), the ratio of depreciation to total assets is used in the present chapter as a proxy for the measurement of non-debt tax shields because *"depreciation is an income tax deduction that allows a taxpayer to recover the cost of certain property"* (Internal Revenue Service, 2012).

6.5.5 Growth

Intangible assets have no collateral value, and their value can decrease quickly in the case of financial distress or bankruptcy (Titman and Wessels, 1988). This means that companies' ability to use debt financing will decline, which in turn will lead them to equity financing. According to Titman and Wessels (1988), companies with high growth face higher agency costs because they can be more flexible when choosing future investments and when *"expropriating wealth from the firm's bondholders"* (Titman and Wessels, 1998, p. 4). Consequently, if the company cannot collateralize the debt it raises, the debt will be more expensive, because a higher risk premium will be asked for. Therefore there is expected to be an inverse relationship between growth and gearing.

On the other hand, according to the pecking order theory, there is a positive relationship between gearing and growth (Myers, 1984; Myers and Majluf, 1984). Growing companies do not have sufficient internal funds, and thus they turn to external financing. As mentioned above, the pecking order theory predicts that when companies turn to external financing, they prefer debt to equity. This means that low-growth companies will raise more debt, which indicates a positive relationship between gearing and growth. Following Bevan and Danbolt (2004), the market to book value ratio is used in the present chapter as a proxy for the measurement of growth opportunities.

6.5.6 Earnings volatility

According to Myers (1977), companies that face high volatility in earnings attempt to accumulate cash during the years in which they perform well, to avoid financial problems in the future. According to DeAngelo and Masulis (1980), companies with highly volatile earnings are more likely to face adverse selection problems; to avoid these problems, they must invest in marketable securities or cash to preserve their debt capacity for possible future financial needs. Therefore, the pecking order theory predicts a negative relationship between earnings volatility and gearing.

According to Bhaduri (2002) and the trade-off theory, companies with highly volatile earnings face a higher risk of being unable to meet their debt commitments, which in turn leads to a higher probability of financial distress. For this reason, companies with high earnings volatility must reduce their level of gearing to avoid facing financial distress. This means that the trade-off theory also predicts a negative relationship between earnings volatility and gearing.

Following Titman and Wessels (1988), Bauer (2004) and Crnigoj and Mramor (2009) the standard deviation of return on assets is used in the present chapter as a proxy for the measurement of earnings volatility. Specifically, the standard deviation of return on assets is the standard deviation of annual percentage return on assets of each company for the eight years under investigation (2001–2008). This means that the earnings volatility stays the same for each company for all years.

6.5.7 Managerial ownership

According to Friend and Hasbrouck (1988), managers that own a proportion of the shares of their company have a different perspective from those who own no shares in their company. *"The personal wealth managerial insiders have invested in their employer is composed largely of their employer's common stock and the firm-specific human capital they have accumulated while working for their employer"* (Abor, 2008, p. 11). This means that, in the case of bankruptcy, there would be a key impact on the managerial insiders' wealth. For this reason, as argued by Friend and Hasbrouck (1988), managerial insiders are more willing to reduce the level of debt financing used in the capital structure decision in order to minimize the bankruptcy risk. This also

implies that the higher the percentage of shares owned by managers, the higher their intention to reduce the level of debt financing. Therefore, a negative relationship is predicted between managerial ownership and gearing. The variable used in the present chapter is a dummy variable, coded 1 for managers who own 3% or more of the total shares of the company, and 0 otherwise.

6.5.8 Industry classification

According to Bradley *et al.* (1984), companies operating in the same industry have similar gearing levels to companies operating in different industries. Additionally, industries have a tendency to retain their ranking of gearing ratios over time (Bowen *et al.*, 1982).

To test whether industry classification has a significant effect on the capital structure of Greek companies, the following classification of 14 industries was used based on the sector in which each company belongs according to the ASE:

1: Utilities (2 companies)
2: Oil & Gas (2 companies)
3: Retail (8 companies)
4: Food & Beverage (21 companies)
5: Personal & Household Goods (31 companies)
6: Technology (20 companies)
7: Chemicals (10 companies)
8: Industrial Goods & Services (22 companies)
9: Basic Resources (12 companies)
10: Telecommunications (2 companies)
11: Travel & Leisure (11 companies)
12: Construction & Materials (22 companies)
13: Health Care (9 companies)
14: Media (9 companies).

Variable	*Proxy*	*References*	*Expected sign* *Trade-off theory*	*Pecking-order theory*
Size	*Natural logarithm of total assets*	Abor (2008); Akhtar and Oliver (2009); Sogorb (2002); Titman and Wessels (1988)	Positive	Negative
Asset structure	*Fixed assets to total assets*	Abor (2008); Akhtar and Oliver (2009); Bauer (2004); Bevan and Danbolt (2004); Chiarella *et al.* (1991); Crnigoj and Mramor (2009); Gill *et al.* (2009); Sogorb (2002); Teker *et al.* (2009)	Positive	Positive
Profitability	*Return on assets*	Abor (2008); Akhtar and Oliver (2009); Bauer (2004); Chang *et al.* (2009); Chiarella *et al.* (1991); Crnigoj and Mramor (2009); Sogorb (2002); Teker *et al.* (2009)	Positive	Negative
Non-debt tax-shields	*Depreciation to total assets*	Akhtar and Oliver (2009); Bauer (2004); Chang *et al.* (2009); Gill *et al.* (2009); Ozkan (2001); Sogorb (2002); Titman and Wessels (1988)	Negative	
Growth Prospects	*Market to book ratio*	Akhtar and Oliver (2009); Bauer (2004); Bevan and Danbolt (2004); Chang *et al.* (2009); Teker *et al.* (2009)	Negative	Positive
Earnings Volatility	*Standard deviation of return on assets*	Bauer (2004); Booth (2001); Crnigoj and Mramor (2009)	Negative	Negative
Managerial Ownership	*Dummy variable coded 1 when managers own more or 3% of the total shares*	Abor (2008); Titman and Wessels (1988)	Negative	
Industry	*Industry dummies*	Bradley *et al.* (1984); Harris and Raviv (1991); Kester (1986)	_____	
Baserate	2.99 if the company reports under Greek GAAP 3.00 if the company reports under IAS/IFRS	----------	----------	

Table 6.2: Table of the proxies used for the main regression run

Note: the proxies used for the check of the robustness of the results will be explained in Section 6.5.3

6.5.9 Base rate

Following the rationale in Section 5.8.6 the average base rate announced by the ECB was also included in the model to control for changes in the base rate.

Table 6.2 summarizes the proxies used as control variables (other proxies from the literature that were used to check the robustness of the results are presented in Section 6.7.3) and the expected signs based on the two theories mentioned above (trade-off and pecking order theory).

6.6 Model for Testing the Hypothesis

Daske *et al.* (2008) investigated the effect of IAS/IFRS adoption on cost of capital and market liquidity. They used three dummy variables to capture the effects of mandatory and voluntary IAS/IFRS adoption as well as the incremental effect of mandatory adoption on all those companies that voluntarily switched. The dummy variable for mandatory adoption included all those companies that had never reported under IAS/IFRS unless they became mandatory, and the voluntary dummy included all those companies that switched to IAS/IFRS before they became mandatory. The reason for the use of different variables for mandatory and voluntary adoption of IAS/IFRS was as follows.

According to Daske *et al.* (2008), the effect of IAS/IFRS adoption on mandatory and voluntary users was expected to differ because voluntary adopters were expected to *"make significant changes to their reporting policies, since they may hire higher quality auditors, improve corporate governance, change ownership structures, or seek cross-listings in stricter regimes, along with IFRS adoption"* (Daske *et al.*, 2008, p. 7). On the other hand, according to Daske *et al.* (2008), all those companies that adopted IAS/IFRS only when they became mandatory were more likely to have done so without making substantial changes to their policies because they were forced to switch to IAS/IFRS; there was a higher possibility that they adopted IAS/IFRS only as a label.

In contrast, Daske *et al.* (2008) argue that the effects of IAS/IFRS adoption in countries that had better accounting policies before their adoption would be lower irrespective of whether companies switched voluntarily to IAS/IFRS. Ding *et al.* (2007) found Greek

GAAP to be of lower quality than IAS/IFRS. On this basis, Greek companies should have made important changes to their policies (irrespective of whether they adopted IAS/IFRS voluntarily), seeking higher transparency in order to attract investors. For this reason, it is expected in the present thesis that the effects of IAS/IFRS adoption were of the same magnitude for voluntary and mandatory adopters. Consequently, one dummy variable (*IAS*) was included in the model to measure the effects of IAS/IFRS adoption on the gearing of Greek companies.

Following the rationale of Booth *et al.* (2001) and Eriotis *et al.* (2007), the effects of IAS/IFRS adoption on gearing was examined by using the following model:

$$Y_{it} = \beta_0 + \beta_1 IAS + \beta_2 Size_{it} + \beta_3 Structure_{it} + \beta_4 Profitability_{it} + \beta_5 Ndts_{it} + \beta_6 Growth_{it} + \beta_7 Volatility_{SD_{it}} + \beta_8 MO + \beta_9 Industry + \beta_{10} Baserate + \varepsilon_{it}$$

where *Y* is the variable to be explained (total debt to total assets, short-term debt to total assets, long-term debt to total assets), *IAS* is a dummy variable coded 1 for all those numbers reported under IAS/IFRS and 0 otherwise, *Size* indicates the size variable, which is the natural logarithm of total assets, *Structure* indicates the asset structure of the company measured by the ratio of fixed to total assets, *Profitability* indicates profitability and is measured by the return on assets ratio, *Ndts* is the non-debt tax shields defined as depreciation over total assets, *Growth* indicates the growth variable, which is measured by the market to book ratio, $Volatility_{SD}$ is the earnings volatility measured by the standard deviation of return on assets (see Section 6.5.6), *MO* is a dummy coded 1 when managers own 3% or more of the shares of the company, *industry* includes dummies for different industries, *Baserate* is the average base rate, *i* is an index for the company, *t* is an index for time, β denotes the coefficient to be estimated, and ε is the error term.

6.7 Results

6.7.1 Descriptive statistics

As explained in Sections 4.6.1 and 5.9.1, the dataset comprised 181 Greek companies that were listed on the ASE during the period under investigation (2001–2008). Companies that were not listed during the whole eight years or that belonged to the

insurance, financial and banking services sector were excluded. Moreover, 35 further companies were excluded because of the non-availability of data. The database included some missing data in particular for 2001–2003. For this reason, the annual reports of the companies were also used. It was checked whether there was agreement between the data in the database and that in the annual reports. Table 6.3 details the total number of companies investigated.

Number of companies listed on the Athens Stock Exchange	**264**
Number of excluded companies not listed continuously over 2001-2008	11
Number of excluded companies belonging to the insurance, financial and banking services sector	37
Number of excluded companies with missing data	35
Total No of companies used	**181**

Table 6.3: Number of Greek companies used

As can be seen from Table 6.4, the average value of gearing increased after IAS/IFRS adoption whether it was measured by short-term debt to total assets ($Leverage_{stdta}$), or long-term debt to total assets ($Leverage_{ltdta}$) or total debt to total assets (*Leverage*). Specifically, when it was measured by short-term debt to total assets it increased from 0.15 to 0.18, whereas when it was measured by long-term debt to total assets it increased from 0.14 to 0.23. The increase was approximately 26% for the average value of gearing when it was measured by total debt to total assets (from 0.30 to 0.41). It can be clearly seen that within the period under investigation the debt financing of the Greek companies increased. This is consistent with the findings of Covrig *et al.* (2007), who found an increase in gearing on a dataset of companies around the world that switched to IAS/IFRS, and those of Paananen (2008), who found that the level of gearing increased after the adoption of IAS/IFRS in Sweden. Athianos *et al.* (2005) and Iatridis

and Rouvolis (2010) also found that the gearing of Greek companies increased when they adopted IAS/IFRS. The maximum value of gearing when measured by long-term debt to total assets was higher for the period after the adoption of IAS/IFRS (0.78) than that reported before their adoption (0.70).

N=1448	**Mean**		**Standard deviation**		**Min**		**Max**		**Test for difference in mean**
	Greek GAAP	IAS/ IFRS	Greek GAAP	IAS/ IFRS	Greek GAAP	IAS/ IFRS	Greek GAAP	IAS/ IFRS	
	N=772	N=676	N=772	N=676	N=772	N=676	N=772	N=676	
Leverage	0.30	0.41	0.18	0.21	0.00[1]	0.00[1]	0.79	1.19	8.01***
$Leverage_{stdta}$	0.15	0.18	0.13	0.14	0.00[1]	0.00[1]	0.72	0.78	3.54***
$Leverage_{ltdta}$	0.14	0.23	0.15	0.16	0.00[1]	0.00[1]	0.70	0.78	7.16***
Size	12.72	13.06	1.29	1.31	10.11	10.10	16.23	16.45	11.29***
Structure	0.47	0.55	0.19	0.18	0.04	0.20	0.95	0.98	0.53
Profitability	0.17	0.14	0.07	0.04	-0.91	-0.22	10.29	4.57	2.32**
Ndts	0.11	0.12	0.13	0.49	0.00	0.00	0.39	0.41	5.91***
Growth	3.73	2.48	10.73	3.88	-23.60	-13.01	106.22	27.68	4.73***
$Volatility_{SD}$	0.02	0.02	0.03	0.05	0.00	0.00	0.33	0.39	1.86*
MO	0.62	0.61	0.48	0.48	0	0	1	1	0.27
Baserate	2.99	3.00	0.00	0.00	2.99	3.00	2.99	3.00	-

Table 6.4: Descriptive Statistics

Note: *Leverage* is the total debt to total assets ratio, $Leverage_{stdta}$ is the short-term debt to total assets ratio, $Leverage_{ltdta}$ is the long-term debt to total assets ratio, *Size* is the natural logarithm of total assets, *Structure* is the ratio of fixed assets over total assets, *Profitability* is the profitability measured by the return on assets, *Ndts* is the depreciation over total assets, and *Growth* is the market to book value ratio, $Volatility_{SD}$ is the earnings volatility measured as the standard deviation of return on assets, *mo* is a dummy coded 1 when managers of the companies own 3% or more of the shares of the company and *Baserate* is the variable used to capture the effect of changes in the base rate for the Euro area announced by the ECB.

1: the values were low and they were rounded to zero (0).

*, **, and *** represent the 10%, 5%, and 1% levels of significance, respectively, for a two-tailed test

The average value of the fixed assets to total assets ratio (*Structure*) increased after the adoption of IAS/IFRS, and the maximum value for both periods was high. The higher value of fixed to total assets ratio indicates that the ability of the Greek companies to issue secured debt increased after the adoption of IAS/IFRS (Booth *et al.*, 2001). This is consistent with the findings of Renders and Gaeremynck (2005), who by using a sample of European companies found that the ratio of fixed to total assets increased after the adoption of IAS/IFRS. The average *Profitability* of the Greek companies in

the present study decreased, which is consistent with the findings of Athianos *et al.* (2005).

The values reported for the existence of non-debt tax shields (*Ndts*) after the adoption of IAS/IFRS were similar to those reported before their adoption. However, the standard deviation was higher for the years after their adoption, revealing that the difference between the mean value of depreciation over total assets and the values reported for the Greek companies was lower for the period before than the period after IAS/IFRS adoption.

As can be seen from Table 6.4, the variable used for *Growth* was the most volatile of the variables because its standard deviation (10.73 and 3.88 for the pre-IAS and the post-IAS period, respectively) was the highest of the variables. The average *Growth* (market to book value) of the Greek companies decreased from 3.73 to 2.48 after the adoption of IAS/IFRS, which is consistent with the findings of Iatridis and Rouvolis (2010). More descriptive statistics of the variables such as skewness and kurtosis are provided in the Appendix (Table 14).

There is the possibility that one or more of the independent variables in the model are correlated with each other. To identify this possibility, a test was run for multicollinearity. According to Gujarati (2003), if the independent variables are correlated with each other, a correct estimation of the beta coefficients of the variables is not possible. The presence of multicollinearity means that the identification of the separate effects of the independent variables is difficult, and some of the variables may be dropped because the model cannot isolate the effect that each independent variable may have on the dependent variable.

A method of testing for multicollinearity is the use of the correlation matrix. If two of the independent variables are correlated, then there is collinearity in the model. The VIF can also be used for testing for multicollinearity. The VIF reveals the degree to which every independent variable can be explained by the remaining independent variables in the model. According to Guajarati (2003), if there is no multicollinearity among the variables, the VIF should have a value less than or equal to 10.

As can be seen from Table 6.5, the VIF factor revealed no multicollinearity in the model, because all the variables had a VIF of less than 10.

	IAS	***Size***	***Growth***	***Profitability***	***Structure***	***Ndts***	***Volatility$_{SD}$***	***MO***	***first***	***second***	***third***	***fourth***	***fifth***	***sixth***
IAS	1.000													
Size	0.757***	1.000												
Growth	-0.07***	-0.21***	1.000											
Profitability	-0.02	0.10***	0.19***	1.000										
Structure	0.05**	0.02	-0.01	0.38***	1.000									
Ndts	0.04	-0.16***	-0.01	-0.05*	0.01	1.000								
Volatility$_{SD}$	0.05**	-0.02	0.09***	-0.02	-0.04*	0.01	1.000							
MO	-0.02	-0.13***	-0.12***	-0.02	0.01	-0.01	0.04	1.000						
first	0.04*	0.02	0.02	0.02	0.82***	-0.86***	0.01	-0.01	1.000					
second	0.06**	0.02	0.05**	0.04	0.82***	-0.87***	0.01	-0.01	-0.02	1.000				
third	0.02	-0.03	0.01	-0.01	0.18	-0.21***	-0.04	0.04	-0.02	-0.01	1.000			
fourth	0.04	-0.02	0.08***	-0.02	0.04	-0.07***	0.05**	0.05*	-0.05*	-0.02	-0.02	1.000		
fifth	0.06**	-0.04	0.13***	-0.04	0.09***	-0.08***	0.08***	-0.11***	-0.08***	-0.04	-0.70	-0.08***	1.000	
sixth	-0.01	-0.02	0.01***	-0.02	-0.01	-0.01	0.05**	0.18***	-0.05**	-0.02	-0.02	-0.05**	-0.08***	1.000
seventh	-0.02	-0.03	0.13***	-0.04	0.06**	0.02	0.08***	-0.10***	-0.08***	-0.03	-0.04	-0.07***	-0.13***	-0.08***
eighth	-0.01	-0.01	0.05**	0.06**	0.70***	-0.61***	-0.03	-0.02	-0.06**	-0.02	-0.03	-0.05**	-0.09***	-0.05**
ninth	-0.02	-0.04	0.13***	-0.04	-0.05*	0.01	0.09***	-0.05**	-0.08***	-0.04	-0.04	-0.08***	-0.13***	-0.08***
tenth	-0.01	-0.03	0.10***	-0.03	-0.06**	0.01	0.06**	-0.07***	-0.06**	-0.03	-0.03	-0.06**	-0.10***	-0.06**
eleventh	-0.01	-0.01	0.04	-0.01	0.04*	-0.02	0.02	0.13***	-0.02	-0.01	-0.01	-0.02	-0.04	-0.02
twelfth	-0.01	-0.03	0.09***	-0.03	-0.04	0.02	0.06**	0.13***	-0.06**	-0.03	-0.03	-0.05**	-0.09***	-0.06**
thirteenth	-0.02	-0.16***	0.08***	0.01	-0.02	-0.06**	-0.02	-0.03	-0.08***	-0.04	-0.04	-0.08***	-0.13***	-0.08***
Baserate	0.13	0.05	0.36	0.14	0.02	-0.10	-0.10	0.02	-0.03	-0.24	0.01	0.04	0.01	-0.01

Table 6.5: Correlation Matrix

Note: *first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth* are dummy variables for the industries, while all the variables were defined in table 6.4
*, **, and *** represent the 10%, 5%, and 1% levels of significance, respectively, for a two-tailed test

	seventh	*eighth*	*ninth*	*tenth*	*eleventh*	*twelfth*	*thirteenth*	*Baserate*	*VIF*
IAS									1.59
Size									1.19
Growth									1.54
Profitability									1.26
Structure									3.61
Ndts									4.24
Volatility$_{SD}$									1.59
MO									1.16
first									1.34
second									1.25
third									1.18
fourth									1.69
fifth									2.19
sixth									2.40
seventh	1.000								1.86
eighth	-0.08***	1.000							2.47
ninth	-0.13***	-0.09***	1.000						2.28
tenth	-0.09***	-0.06**	-0.10***	1.000					1.44
eleventh	-0.04	-0.02	-0.04	-0.03	1.000				1.17
twelfth	-0.09***	-0.06**	-0.09***	-0.07***	-0.03	1.000			1.36
thirteenth	-0.13***	-0.09***	-0.14***	-0.14***	-0.04	-0.09***	1.000		1.19
Baserate	-0.03	0.05	-0.02	-0.01	-0.01	0.10	-0.04	1.000	3.19

Table 6.5: Correlation Matrix (continued)

Note: *first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth* are dummy variables for the industries, while the rest of the variables were defined in table 6.4

*, **, and *** represent the 10%, 5%, and 1% levels of significance, respectively, for a two-tailed test

6.7.2 Estimation results

Panel and pooled data analysis techniques were used for the determination of the most appropriate technique with which to best explain the model. Panel data analysis requires the use of fixed and random effects techniques (Gujarati, 2003).

The differences between the pooled and panel data techniques were discussed in Chapter 5, along with the appropriate use of fixed or random effects.

Eriotis *et al.* (2007) followed this methodology in an effort to estimate the determinants of capital structure in the Greek market while using data on 129 companies that were listed on the ASE between 1997 and 2001.

After running the regression using the fixed and random effects techniques, a Hausman test was used, which tests the null hypothesis that the coefficients estimated by fixed and random effects are similar. A statistically significant Hausman test indicates that the best technique would be the fixed effects technique.

Frank and Goyal (2009) found that the fixed effects technique provided the best estimation, while testing whether the capital structure of publicly traded American companies followed the pecking order theory. Bevan and Danbolt (2004) also found that the capital structure of UK companies is explained better by the use of fixed effects, while using data for the period 1991–1997. Fixed and random effects techniques have been widely used in the literature as tools for panel data analysis (Booth *et al.*, 2001; Chen, 2004; Flannery and Rangan, 2006).

The model developed in Section 6.6 is linear. The assumptions of a linear regression are that each of the independent variables has a linear relationship with the dependent variable, the residuals of the regression are normally distributed, and there is no heteroscedasticity and no serial correlation of the residuals. To determine non-normally distributed residuals and heteroscedasticity, robust regressions were run in STATA. Table 6.6 is a summary of the results produced by STATA; the complete tables are provided in the Appendix (Tables 15 to 17).

	Leverage	***Leverage$_{stdta}$***	***Leverage$_{ltdta}$***
IAS	0.3024	0.1245	0.1779
	(10.56)***	(6.79)***	(7.12)***
Size	0.1545	0.1039	0.0506
	(4.03)***	(3.99)***	(1.90)*
Growth	-0.0190	-0.0184	-0.0006
	(-1.81)*	(-2.49)**	(-0.07)
Profitability	0.3488	0.1773	0.1715
	(7.18)***	(3.46)***	(4.48)***
Structure	0.0079	0.0040	0.0040
	(0.52)	(0.39)	(0.29)
Ndts	-0.2294	-0.0280	-0.2014
	(-2.22)**	(-0.36)	(-2.42)**
Volatility$_{SD}$	-0.0393	-0.0200	-0.0193
	(-2.76)***	(-1.98)*	(-1.65)*
MO	-0.0389	-0.0112	-0.0277
	(-4.32)***	(-1.85)*	(-3.76)***
first	-0.0041	0.0344	-0.0385
	(-0.04)	(0.52)	(-0.49)
second	-0.0151	-0.0138	-0.0012
	(-0.58)	(-0.80)	(-0.06)
third	-0.0111	-0.0007	-0.0104
	(-0.24)	(-0.02)	(-0.24)
fourth	0.1907	0.0781	0.1125
	(6.86)***	(4.08)***	(5.25)***
fifth	0.1247	0.0702	0.0546
	(6.70)***	(5.02)***	(3.72)***
sixth	0.1269	0.0697	0.0571
	(4.57)***	(3.67)***	(2.54)**
seventh	0.1384	0.0642	0.0742
	(7.10)***	(4.62)***	(4.87)***
eighth	0.0264	0.0336	-0.0072
	(0.33)	(0.66)	(-0.11)
ninth	0.0283	0.0282	0.0001
	(1.72)*	(2.43)**	(0.01)
tenth	0.0270	0.0254	0.0016
	(1.30)	(1.98)**	(0.11)
eleventh	0.1303	0.0591	0.0712
	(4.04)***	(1.84)*	(2.58)***
twelfth	0.0756	0.0256	0.0450
	(4.52)***	(2.12)**	(3.48)***
thirteenth	-0.0073	-0.0105	0.0032
	(-0.98)	(-2.06)**	(0.48)
Baserate	-0.1517	-0.0679	-0.0837
	(-2.08)**	(-1.42)	(-1.44)
constant	0.2063	0.0953	0.1111
	(16.51)***	(11.15)***	(11.25)***
R^2	0.1929	0.0810	0.1220
P value	0.000	0.000	0.000
Hausman Test	30.54	47.45	10.65
N	1448	1448	1448

Table 6.6: Estimation results

Note: the dependent variables used in the three models are reported at the first cell of each column. The rest of the variables were defined in tables 6.4 and 6.5.

As can be seen from Table 6.6, the dummy variable used for the measurement of the IAS/IFRS adoption was statistically significant and positively related to gearing at the 1% level. This means that after the adoption of IAS/IFRS, the level of gearing for the Greek companies increased. As mentioned above, the positive relationship between these variables may be attributed to the increased credibility of Greek companies after they switched to IAS/IFRS. Additionally, it has been argued that the transition from local GAAP to IAS/IFRS can be costly, which means that Greek companies may seek to raise debt or equity capital to transition smoothly from local GAAP to IAS/IFRS reporting. Greek companies usually finance their activities through loans from banks, which may explain the higher level of gearing. Another reason for the positive and statistically significant relationship between the *IAS* variable and gearing may be the introduction of new accounting rules that did not exist under Greek GAAP or that did exist but were different under Greek GAAP.

Specifically, as explained in Section 6.2.1, the adoption of IAS 19 (Employee Benefits) resulted in an increase in the liabilities reported in the annual reports of Greek companies. Therefore, the numerator of the fraction used as a measurement of gearing increased, which in turn increased the whole fraction. Accordingly, the introduction of IAS 32 regarding financial instruments increased the liabilities disclosed within the annual reports of the Greek companies. Additionally, before the adoption of IAS 37, Greek companies were disclosing mainly provisions concerning tax advantages; the adoption of IAS 37 obliged Greek companies to recognize and disclose all provisions, which again affected liabilities and thus gearing.

Size and gearing are positively related, and the relationship was statistically significant at the level of 1% when gearing was measured by total debt to total assets and short-term debt to total assets. When gearing was measured by long term debt to total assets, the positive relationship was found to be significant at the 10% level. This means that large companies reported higher levels of gearing than small companies. The positive relationship between size and gearing agrees with the findings of Bevan and Danbolt (2002, 2004), Eriotis (2007) and Booth *et al.* (2001) for some of the countries they investigated. It is also in line with the finding of Akhtar and Oliver (2009) that the size of Japanese companies is positively related to gearing. This result also agrees with the trade-off theory, according to which small

companies have a greater probability of bankruptcy, which in turn can limit the borrowing capacity of Greek companies.

The proxy used for measurement of *Growth* was also statistically significant but negatively related to gearing. This negative relationship between the capital structure of a company and growth implies that companies with low growth use more debt (Myers, 1977). The proxy used for the measurement of growth is the market to book ratio. This result strengthens the view that companies with low growth face lower costs in regard to financial distress. The negative relationship between growth and gearing is consistent with the results obtained by Huang and Song (2006), who examined 1200 Chinese listed companies and found that companies with low growth opportunities tend to have higher levels of gearing. It also agrees with the results of Baker and Wurgler (2002) and Chang *et al.* (2009), who found a significantly negative relationship between gearing and market to book value ratio, supporting the view that a high market to book value indicates that companies will turn to equity markets to raise external financing. The observed negative relationship is also in line with the finding of Bauer (2004) that gearing and growth opportunities are negatively related in developed countries, but that the relationship is highly significant only when gearing is expressed in terms of market value.

The results in Table 6.6 show that there was a positive and statistically significant relationship between profitability (*Profitability*) and gearing at the 1% level. This finding implies that highly profitable companies are able to attract more debt financing. An explanation for this result may be that highly profitable companies face lower risk of bankruptcy; thus, lenders are more willing to provide them with capital because there is a higher possibility they will get back their capital (Tong and Green, 2005). This finding contradicts most of the results in the literature of the determinants of capital structure because most studies have found profitability to be negatively related to gearing (Chen, 2004; Frank and Goyal, 2009). There are papers that report mixed results regarding the relationship between gearing and profitability, when using more than one proxy for the measurement of profitability (Chang *et al.*, 2009; Teker *et al.*, 2009). However, the positive relationship between gearing and profitability found in the present chapter is consistent with the findings of Baskin (1989) and Tong and Green (2005), suggesting that there is a lower possibility of bankruptcy for highly profitable companies. Companies with low possibility of

bankruptcy are able to obtain easier debt financing because they are more able to meet their debt obligations.

Asset structure (*Structure*) appeared to be positively related to gearing, but was not statistically significant with gearing, irrespective of how it was measured (total debt to total assets, short-term debt to total assets or long-term debt to total assets). This result is consistent with that of Titman and Wessels (1988), who also found an insignificant relationship between gearing and assets structure. Akhtar and Oliver (2009) also found a positive relationship between gearing and asset structure, but this relationship was statistically significant in the case of Japanese companies. A statistically significant relationship between the two variables was also found by Teker *et al.* (2009), who investigated 42 Turkish listed companies.

Regarding non-debt tax shields (*Ndts*), as predicted by the trade-off theory, these were negatively related to gearing and statistically significant at the level of 5% when gearing was measured by total debt to total assets or by long-term debt to total assets, but they were found to be statistically insignificant when gearing was measured by short-term debt to total assets. This is consistent with the results of Flannery and Rangan (2006) and Ozkan (2001). The inverse relationship between gearing and depreciation charges supports the view that in the presence of depreciation (which was used as a proxy for non-debt tax shields), the need to raise debt for tax consideration is reduced (Baxter, 1967). The results in the literature for non-debt tax shields are mixed. For example, Chen (2004) found that the existence of non-debt tax shields was positively related to gearing when gearing was measured by total debt to total assets, whereas it was negatively related to gearing when the dependent variable was long-term debt to total assets. A negative relationship between gearing and non-debt tax shields was also found by Bauer (2004), who investigated 74 Czech companies listed on the Prague Stock Exchange. The negative relationship, however, was found to be insignificant. On the other hand, a positive relationship between gearing and non-debt tax shields was found by Tsai *et al.* (2010) during their investigation of the determinants of capital structure in the building industry.

The results of the present study also indicate a significant relationship between earnings volatility ($Volatility_{SD}$) and gearing. Specifically, there was a significantly

negative relationship between gearing and earnings volatility at the level of 1% when gearing is measured by total debt to total assets and at the level of 10% when gearing is measured by short term debt or long term debt to total assets. This result is in line with that of Crnigoj and Mramor (2009), who found a negative correlation of gearing with earnings volatility. This also agrees with the findings of Miguel and Pindado (2001) and Banerjee *et al.* (2000) and indicates that Greek companies with volatile earnings cannot issue debt as easily as those with less-volatile earnings. This argument relies on the view that companies with more-volatile earnings face a higher risk of bankruptcy, which in turn reduces their ability to raise debt.

Table 6.6 also reveals a negative and significant relationship between gearing and managerial ownership (*MO*). Greek companies with more managers owning shares in their company reported lower levels of gearing, which means that companies with a low percentage of managerial ownership depend less on debt financing. This may be explained on the basis that large companies with a high percentage of managerial ownership are more cautious in raising capital through debt financing, with the aim of avoiding risks associated with bankruptcy (Abor, 2008).

Regarding the industry classification, as can be seen from Table 6.6, companies belonging to Food & Beverage, Personal & Household Goods, Technology, Chemicals, Travel & Leisure and Construction & Materials reported higher levels of gearing.

The variable used to capture the effect of the average base rate announced by the ECB for the Euro area (*Baserate*) on the leverage of the Greek companies was found to be statistically significant and negatively related to *Leverage*. This finding implies that the lower the interest rate on new debt, the more attractive the leverage is to the firm. In other words, companies can borrow at a low cost of capital when the interest rates are low.

6.7.3 Robustness

To make sure that the model did not suffer from endogeneity, a Hausman Specification Test was run as part of the robustness check (see Section 4.6.2). Since *Growth* is used as a control variable in the model, *Ocf* is used as an additional

variable. *Ocf* has been found to explain significantly the regulatory regime (Spathis and Georgakopoulou, 2007). The results (Tables 18 to 20, Appendix) revealed that the model did not suffer from endogeneity, because the p-value of the estimated residuals did not differ significantly from 0 irrespective of how gearing was measured.

To check that the proxies chosen for the variables did not yield results that were different from those of other variables in the literature, another regression was run using the natural logarithm of sales as a proxy for size, the operating income to sales as a proxy for profitability, the growth of sales as a proxy for growth, and the standard deviation of percentage change in sales as a proxy for earnings volatility. Table 22 (Appendix) provides descriptive statistics of the alternative variables used. The results (Tables 21, 23 and 24, Appendix) showed no significant differences between the proxies chosen for the main analysis of this chapter.

Some of the control variables used in the present chapter are considered within the disclosure research to be important variables. Specifically, regarding size, it has been argued that small companies are not able to gather and present as much information as large companies because the former may not possess as many resources. On the other hand, large companies do possess the resources required to inform managers and directors of the performance of the company, although they require a higher volume of internal data because they operate in large geographical areas (Buzby, 1975). Additionally, investors feel more confident when they have access to proper disclosure; thus, companies with a high level of disclosure have easier access to external financing.

Lopes and Rodrigues (2007) found that size and disclosure were positively related in the case of 55 Portuguese companies in the industrial and financial sectors. Iatridis (2008) also found that UK companies that disclose more information tend to exhibit higher size measures. The reason for this higher level of disclosure for large companies is that they tend to disclose more information in order to *"reassure investors about their business plans and policy choice, and avoid political attention and scrutiny"* (Iatridis, 2008, p. 229).

A company's disclosure level is thought to have a positive relationship with its profitability. The higher a company's profitability, the higher the investors' confidence in the company, and therefore the higher the management compensation will be, according to Singhvi and Desai (1971). Some arguments support the view that a highly profitable company is more respected in the market based on the evidence it presents in its annual report (Wallace and Naser, 1995). On the other hand, Lang and Lundholm (1993) claim that a company's disclosure level has a positive relationship with its profitability only in the presence of information asymmetry between the managers and the investors. The empirical evidence is mixed, with some studies reporting a positive and statistically significant relationship (Wallace *et al.*, 1994; Owusu-Ansah, 1998), others reporting a neutral relationship (Raffournier, 1995) and some reporting a negative relationship between profitability and disclosure level (Wallace and Naser, 1995).

High levels of disclosure are believed to boost investors' confidence because such levels eliminate conflicts and information asymmetry among investors and managers. Therefore the costs for external financing decrease. Bushman and Smith (2001) claim that a high level of disclosure may be used by investors as a mechanism to monitor insiders. Bushman and Smith (2003) further support their argument by claiming that an expanded disclosure policy improves a company's performance on several levels. An expanded disclosure policy brings advantageous financial results by *"disciplining efficient management of assets in place, better project selection, and reduced expropriation of investors' wealth by the managers"* (Bushman and Smith, 2003, p. 68). Thus, a higher level of disclosure should enable a company to access lower-cost debt financing. Assuming the validity of the above assumption, then expanded disclosure would enable a company to improve its investment ability in profitable projects.

In early studies on disclosure, the quality of the manager's private information is considered to be an exogenous parameter (Verrecchia, 1983). Higher disclosure can eliminate uncertainty and information asymmetry about a company's profile in the market as well as among shareholders. Companies with greater information asymmetry may increase disclosure deliberately in the market in order to gain trust among shareholders. If information asymmetry uses as a proxy a measure of the company's earnings quality, then earnings quality and level of disclosure are

negatively related. This means that companies with poor earnings quality tend to disclose more, whereas companies with good earnings quality disclose less. However, companies with poor earnings quality, in an effort to disclose more, tend to base their disclosure on poor information, which leads to reduced credibility in the market. Therefore, it is essential to ensure that the disclosure decision is based upon an endogenous decision and not an exogenous system of poor or high-quality information.

Assuming the validity of the assumption that *"using IAS typically implies using stricter measurement rules and making more disclosures in financial statements than would be required under a firm's local GAAP"* (Cuijpers and Buijink, 2005, p. 494), and because disclosure is associated with some of the control variables used in the present chapter, additional regressions were run using interaction variables of IAS/IFRS with the control variables as part of the sensitivity analysis.

The model including the interaction terms is as follows:

$$Y_{it} = \beta_0 + \beta_1 IAS + \beta_2 Size_{it} + \beta_3 Growth_{it} + \beta_4 Profitability_{it} + \beta_5 Strusture_{it} + \beta_6 Ndts_{it} + \beta_7 Volatility_{SD\,it} + \beta_8 MO + \beta_9 Industry + \beta_{10} iassize_{it} + \beta_{11} iasgrowth_{it} + \beta_{12} iasprof_{it} + \beta_{13} iasvolatility_{it} + \varepsilon_{it}$$

where *Y*, *IAS*, *Size*, *Growth*, *Profitability*, *Structure*, *Ndts*, $Volatility_{SD}$, *MO*, *industry*, ε, *i* and *t* are defined as in Section 6.6; *iassize* is an interaction dummy measuring the effect of IAS/IFRS adoption on the relationship between size and gearing and is the multiplication of the *IAS* dummy with the natural logarithm of total assets, *iasgrowth* is an interaction dummy measuring the effect of IAS/IFRS adoption on the relationship between growth and gearing and is the multiplication of the *IAS* dummy with the market to book ratio, *iasprof* is an interaction dummy measuring the effect of IAS/IFRS adoption on the relationship between profitability and gearing and is the multiplication of the *IAS* dummy with return on assets, and *iasvolatility* is an interaction dummy measuring the effect of IAS/IFRS adoption on the relationship between volatility and gearing and is the multiplication of the *IAS* dummy with the standard deviation of return on assets.

The results (Tables 25 to 27, Appendix) showed no statistical significance for the interaction terms used, while the statistical significance and the correlation of the other control variables did not change significantly.

6.8 Conclusion

The purpose of this chapter was to investigate whether the adoption of IAS/IFRS affected gearing, while using data from Greek companies. It was hypothesized that the adoption of IAS/IFRS increased gearing; the reasons behind this hypothesis were, firstly, the increased credibility and increasing ability to borrow, secondly, the costly transition to IAS/IFRS, which would indicate the need for the Greek companies to raise capital, and thirdly changes to accounting rules such as the reclassification and measurement of different instruments. The findings do not differentiate between the three reasons. The data consisted of information about 181 Greek companies that were listed on the ASE during 2001–2008.

A static model was used to identify whether or not the adoption of IAS/IFRS increased gearing, as well as to test the relationship between gearing and the control variables used in the present chapter. Size, asset structure, profitability, non-debt tax shields, growth, earnings volatility, managerial ownership and industry classification were used as control variables. The independent variable was a dummy variable, which was used to capture any effects that the adoption of IAS/IFRS had on gearing. The model was tested for multicollinearity, heteroscedasticity, abnormal distribution and serial correlation of the residuals. Pooled and panel data techniques were used.

Taking into consideration the three reasons mentioned at the beginning of the section, the results showed that the level of gearing increased for all those Greek companies that adopted the IAS/IFRS. The estimated results for the control variables are in line with those of prior research. In the present study, the size of a company and its profitability were found to be positively related to gearing, irrespective of which proxies were used for its measurement (total debt to total assets, short-term debt to total assets or long-term debt to total assets), whereas non-debt tax shields,

growth and managerial ownership were found to be negatively related to gearing after the adoption of IAS/IFRS.

Chapter 7
Conclusions

7.1 Introduction

In 2001, the European Commission decided that it was important for all listed companies to adopt IAS/IFRS with effect from January 2005. Specifically, all listed companies were expected to adopt by 1 January 2005 all the standards that had been issued before March 2004. All those issued after March 2004 were to be adopted by 2006 or later. *"This development has been described as the most significant event in the history of financial reporting"* (Tsalavoutas, 2009, p. 1). Taking into consideration the various views expressed regarding the effects of the IAS/IFRS adoption as well as the recommended suggestions for research, the present thesis examined three dimensions regarding the IAS/IFRS adoption by 181 Greek listed companies.

The remainder of this chapter is structured as follows. Section 7.2 presents the research objectives and the research questions. Section 7.3 summarizes the findings of the three empirical chapters of the thesis, and Section 7.4 outlines the contributions of the study to the literature. The study's policy implications are discussed in Section 7.5. The limitations of the study are presented in Section 7.6, and Section 7.7 discusses how the results of the study may aid future research.

7.2 Research Objectives and Questions

7.2.1 Research objectives

Taking into consideration the Greek accounting environment and the opportunities for research regarding the effects of IAS/IFRS adoption, the objectives of this thesis were as follows:

(1) To contribute to the literature regarding the effects of IAS/IFRS on the use of creative accounting and specifically earnings management.

(2) To contribute to the literature regarding the effects of IAS/IFRS on the cost of debt.

(3) To contribute to the literature regarding the level of gearing before and after the adoption of IAS/IFRS.

7.2.2 Research questions

The research objectives presented above led to the following research questions that the study explored:

Q1. What have been the effects of the adoption of IAS/IFRS on earnings management in Greece?

Q2. What have been the effects of the adoption of IAS/IFRS on the cost of debt of Greek companies?

Q3. What have been the effects of the adoption of IAS/IFRS on gearing in Greece?

7.3 Findings of the Study

The results of this study regarding the relationship between earnings management and IAS/IFRS adoption (see Chapter 4) revealed that they are negatively related and that their relationship is statistically significant irrespective of how accruals are measured (following the cash flow or the balance sheet method). In other words, the negative relationship between the IAS/IFRS adoption and the accruals measured through the balance sheet method and the cash flow method was found to be statistically significant. This implies that Greek companies tended to use less earnings management as a means of creative accounting after the adoption of IAS/IFRS. As shown in Section 4.2.2, Greek companies had several incentives to manage their earnings. The adoption of IAS/IFRS presented more incentives to companies to report useful information to investors and, therefore, to reduce earnings management.

In addition, the relationship between IAS/IFRS adoption and cost of debt (see Chapter 5) was found to be negative and statistically significant. This finding justifies the argument that IAS/IFRS adoption decreases the cost of debt because of the increased quality and quantity of accounting disclosures (Covrig *et al.*, 2007). Additionally, the finding supports the view that the mis-coordination between suppliers and companies can be reduced through the adoption of IAS/IFRS, which in turn enables companies to borrow at better terms (Lambert *et al.*, 2007). In other words, lenders' decisions when estimating a company's default risk affect the company's accounting disclosure quality. Other variables remaining constant, the rates charged to companies reporting under IAS/IFRS are lower than the rates

charged to companies reporting under Greek GAAP. The reason for this decrease may be attributed to the fact that the accounting disclosures produced under Greek GAAP are perceived to be of a lower quality than those produced under IAS/IFRS.

Moreover, taken into consideration that the credibility as well as the borrowing bargain power of the Greek companies increase due to the reduced risk resulting from the improved quality of financial reporting after the IAS/IFRS adoption, the results of Chapter 6 revealed a positive and statistically significant relationship between the IAS/IFRS adoption and gearing. The positive relationship between the two aforementioned variables can also be attributed to the fact that the transition to IAS/IFRS is costly, and that Greek companies would possibly seek to finance this transition through bank loans. Additionally, the fact that the adoption of some accounting standards required the re-classification of instruments that affected gearing ratio is a possible reason for the positive relationship between gearing and the IAS/IFRS adoption (Chapter 6).

As mentioned above, it has been argued that the transition from Greek GAAP to IAS/IFRS can be costly, which means that Greek companies may seek to raise debt or equity capital to transition smoothly from local GAAP to IAS/IFRS reporting. Greek companies usually finance their activities through loans from banks, which may explain the higher level of gearing. Another reason for the statistically significant and positive relationship between gearing and IAS/IFRS adoption may be the introduction of new accounting rules that did not exist under Greek GAAP or that did exist but were different under Greek GAAP.

In particular, as discussed in Chapter 6, the introduction of IAS 19 (Employee Benefits) increased the amount of liabilities reported in the annual reports of Greek companies. For this reason, the fraction used for the measurement of gearing increased because of the increase in the numerator. Chapter 6 showed that gearing may also have increased because of the introduction of IAS 32 and IAS 37. Under Greek GAAP, companies were not obliged to recognize and disclose all provisions. The requirement of IAS 37 obliged Greek companies to recognize all provisions, again increasing the numerator of the fraction used for the measurement of gearing and, therefore, the fraction as a whole.

7.4 Contributions of the Study

7.4.1 The effects of the IAS/IFRS adoption on earnings management

As mentioned in Chapter 4, earnings quality may be improved through the adoption of stricter accounting rules (Barth *et al.*, 1999). The effect of IAS/IFRS adoption on earnings quality has engaged several researchers (Lang *et al.*, 2006; Ding *et al.*, 2007; Jeanjean and Stolowy, 2008; Iatridis and Rouvolis, 2010).

As shown in Chapter 3 and Chapter 4, most researchers found that earnings quality increased after the adoption of IAS/IFRS because the use of earnings management decreased. Briefly, Lang *et al.* (2006) found that countries that experienced high levels of earnings management before the adoption of IAS/IFRS subsequently experienced a decrease in these levels after their adoption. Iatridis and Rouvolis (2010) also found that the level of earnings management decreased after IAS/IFRS adoption in Greece. Their research examined data for two years (one year before and one year after the adoption of IAS/IFRS), as opposed to the present study, which examined data over eight years.

Taking into consideration the high incentives for earnings management provided in the Greek market (see Section 4.2), it is essential to investigate further the use of earnings management in Greece before and after IAS/IFRS adoption.

Greece is a "code-law" country with low investor protection (La Porta *et al.*, 2000), and as mentioned above, it has high levels of earnings management (Leuz *et al.*, 2003). Therefore, the present study adds to the literature by examining the connection between the adoption of IAS/IFRS and lower earnings management in Greece. In contrast to most of the empirical studies examining this relationship, the present study applied the Modified Jones model as well as five other proxies to check whether or not the adoption of IAS/IFRS is negatively related to the use of earnings management.

The findings of the present study contribute to the debate on whether high quality standards are effective on countries which are characterised by weak investor protection rights. They indicate that IFRS's adopters can be associated with lower earnings management.

7.4.2 The effects of the IAS/IFRS adoption on cost of debt

Accordning to the economic theory, improved disclosure of firm-specific information lowers the required investors' return. Higher disclosure is perceived as a reaction to the information asymmetry between investors and managers. The findings of the literature suggest that there is an inverse relationship between higher disclosure quality and cost of capital. Firstly, higher disclosure quality enables investors to make more precise predictions about future stock returns, lowering the estimation risk as well as the uncertainty regarding the company's future profitability and cash flows (Barry and Brown, 1985; Clarkson *et al*., 1996). Additionally, improved disclosure lowers transaction costs; enhanced disclosure increases the company's liquidity and lowers the company's cost of finance (Diamond and Verrecchia, 1991; and Easley and O'Hara, 2004).

Despite the fact that the empirical evidence confirms the negative association between cost of finance and disclosure, there are studies that report opposite or insignificant results (Richardson and Welker, 2001; Botosan and Plumlee, 2002). Findings reveal that information asymmetry (measured by bid-ask spread) and financial analysts' disclosure ratings are negatively related (Healy et al., 1999). Moreover, according to Sengupta (1998), the perception of analysts regarding a company's disclosure quality is negatively related to the company's interest rate. Nikolaev and van Lent (2005) also report a negative relationship between disclosure and cost of debt.

As mentioned in Chapter 3 and Chapter 5, the evidence on the effects of the IAS/IFRS adoption on debt markets is limited. In short, the literature shows that credit rating agencies do take positively a company's adoption of IAS/IFRS when estimating the company's credit rating (Wu and Zhang, 2009). Companies around the world that have adopted IAS/IFRS borrow at better terms than those that report under their local GAAP (Kim *et al.*, 2010).

Specifically, in the case of the UK, it was found that the IAS/IFRS adoption and cost of debt are negatively related and that this relationship is statistically significant (Florou and Kosi, 2009).

This suggests that the outcomes of empirical studies regarding the effects of IAS/IFRS adoption on debt markets are so far limited; there are only a few studies focusing on the debt markets which means that there cannot be a clear evaluation of the effects of IAS/IFRS adoption on debt markets. Here lies the contribution of Chapter 5: it provides evidence on the impact of IAS/IFRS adoption on cost of debt in an emerging market – Greece.

7.4.3 The effects of the IAS/IFRS adoption on gearing

As explained in Chapter 3 and Chapter 6, several studies that investigated the effect of IAS/IFRS adoption, either on equity or debt markets, found increased gearing ratios after the adoption of IAS/IFRS.

In particular, an increase in the gearing ratios of several companies around the world was found by Covrig *et al.* (2007), and according to Paananen (2008), Swedish companies reported higher levels of gearing after they switched to IAS/IFRS. In the case of Greece, it has also been found that Greek companies reported higher levels of gearing after the adoption of IAS/IFRS than they did before the adoption of IAS/IFRS (Athianos *et al.*, 2005; Iatridis and Rouvolis, 2010).

Although several studies report an increase in the gearing ratios of examined companies, they provide no evidence for why this increase may have occurred. Here lies the contribution of Chapter 6: it provides evidence on whether IAS/IFRS adoption increased the gearing ratio of companies in the emerging market of Greece. In other words, Chapter 6 contributes to the literature regarding the actual effect of the transition from Greek GAAP to IAS/IFRS on gearing levels. In particular, it used both pooled data and panel data techniques (fixed and random effects) to investigate whether the transition from Greek GAAP to IAS/IFRS increased the gearing levels of Greek companies.

7.4.4 Methodological contribution

Compared to previous research, this study was the first to apply different methods (the Modified Jones model and five proxies) for the measurement of the effect of IAS/IFRS adoption on earnings management (see Chapter 4). Specifically,

compared with studies that used only the Modified Jones model (Lobo and Zhou, 2001; Van Tendeloo and Vanstraelen, 2005) or only five proxies (Barth *et al.*, 2008; Iatridis and Rouvolis, 2012) for the measurement of earnings management, the present study used both techniques, to increase the robustness of the results.

In addition, Chapter 5 and Chapter 6 used both OLS and GLS regressions to capture the effects of IAS/IFRS adoption on cost of debt and gearing. Compared with this study, which examined an eight-year period, most studies that investigated the effects of IAS/IFRS adoption on equity and debt markets used a period of two years (one year before and one year after IAS/IFRS adoption) or four years (two years before and two years after IAS/IFRS adoption).

7.5 Implications of the Study

The results of the present study are useful for accounting regulators, financial analysts, investors and stock market authorities. The implementation of IAS/IFRS harmonises the accounting practice and lowers information asymmetry and the use of earnings management, thus boosting the stock market efficiency. The present thesis provides a clear picture of the performance of Greek companies relating to the IAS/IFRS adoption, which is important for accounting regulators. The study is useful for stock market authorities and financial analysts, since its findings allow them to reinforce the current framework and help investors predict companies' future performance. The present study also constitutes the basic point for examining the behaviour of companies in relation to other accounting settings.

More specifically, the results of the study contribute to the debate on whether or not code-law countries such as Greece, where there is weak investors' protection, experience significant effects of IAS/IFRS adoption. Specifically, as shown in Chapter 4, the results indicate that the adoption of IAS/IFRS may be related to lower levels of earnings management. This finding provides information to policy-making bodies and may help them to decide the minimum disclosure requirements for companies because, as explained in Chapter 4, these requirements are connected with a company's ability to engage in earnings management. Another implication of Chapter 4 is that reducing accounting discretion through the adoption of a common set of accounting standards will reduce earnings management and may in turn enable

the comparability of earnings across companies, reducing their informativeness. The argument of increased comparability is supported by the evidence provided in Chapter 5 and Chapter 6 regarding, respectively, the association of IAS/IFRS adoption with cost of debt and gearing. The fact that the cost of debt and IAS/IFRS adoption are negatively related, and that gearing and IAS/IFRS adoption are positively related, as well as that both relationships are statistically significant, provide researchers with more information to better understand the components of disclosure quality.

7.6 Limitations of the Study

The limitations of the study may be summarized as follows.

Firstly, the study focused only on Greece, which means that the sample used may be relatively small compared with a sample used to investigate a larger region such as the EU. Secondly, the sample of Greek companies was not randomly selected.

Thirdly, no generalization of the results can be made, because as explained within the thesis, the accounting environment of Greece is unique: its accounting profession is young, and its enforcement mechanisms are weak.

Fourthly, the study did not take into consideration specific accounting standards that have been issued for different companies such as small and medium-sized companies or governmental companies. Additionally, the results of the study do not take into consideration any public or personal opinions and are based only on numbers.

Moreover, although the present thesis has controlled for various earnings management incentives (Chapter 4), there might be other incentives that have not been included in the sample. As explained in Chapter 5, the accounting cost of debt may have been affected by two changes: the change in accounting treatment and the change in the interest rate charged. Although the results show that the cost of debt of Greek companies decreased after the adoption of IAS/IFRS, this chapter does not attempt to single out the effects of each of the above factors. The findings of Chapter

6 do not differentiate either between the three possible reasons for the increased gearing of the Greek companies.

7.7 Suggestions for Future Research

The adoption of IAS/IFRS has created many opportunities for international accounting research. The (voluntary or mandatory) adoption of IAS/IFRS has motivated several researchers to examine its effects on equity and debt markets (Nobes, 2006; Platikanova and Nobes, 2006; Barth *et al.*, 2008; Daske *et al.*, 2008; Jeanjean and Stolowy, 2008; Christensen *et al.*, 2009) as well as aspects of accounting quality after the IAS/IFRS in different countries or in multi-country settings which have not been examined in the present study. Nevertheless, opportunities for future research may be found in the limitations of the present study.

This study focused on the adoption of IAS/IFRS in Greece. It would be desirable that further studies focus on the compliance with IAS/IFRS in Greece, which would include how well Greek companies apply the IAS/IFRS as well as details of the application. In other words, it should be investigated whether or not companies not only adopt but also apply the IAS/IFRS correctly. Another point for further research may be the investigation of the specific standards addressed to small and medium-sized companies or governmental companies and how these standards have been adopted and applied in the Greek market.

Future research may also take into consideration some personal opinions or public opinion regarding the effects of IAS/IFRS in Greece. Interviews may be conducted with users of financial statements, or questionnaires may be distributed to users and preparers of financial statements, with the aim of examining the usefulness of the transition to IAS/IFRS. The quality of the accounting information reported by Greek listed companies, could benift from the ideas and perspectives provided by efficient discusions with traders and investors in Greece.

Last but not least, Baralexis (2004) through qualitative research and Spathis *et al.* (2002) through quantitative research investigated the use of creative accounting practices of Greek companies. The results of Chapter 4 validate the view that these

practises would be curtailed by the adoption of IAS/IFRS. Based on the above mentioned argument, future qualitative or quantitative research could help us reach safe conclusions to determine whether Greek companies apply creative accounting practices after the implementation of IAS/IFRS and, if so, to suggest new ideas regarding areas on which these practices could be implemented. Future research could also focus on a detailed examination of the differences between Greek GAAP and IAS/IFRS and identify if and how these differences may have an effect on the companies' performance and future prospects.

References

Abd-Elsalam, O.H. and Weetman, P. (2003). 'Introducing International Accounting Standards to an emerging capital market: relative familiarity and language effect in Egypt', *Journal of International Accounting, Auditing and Taxation*, Vol. 12, pp. 63-84.

Abor, J. (2008). 'Determinants of the Capital Structure of Ghanaian Firms', AERC Research Paper 176, African Economic Research Consortium, Nairobi.

Akhtar, S. and Oliver B. (2009). 'Determinants of Capital Structure for Japanese Multinational and Domestic Corporations', *International Review of Finance*, Vol. 9, No. 1-2, pp. 1-26.

Al Najjar, F. and Riahi-Belkaoui, A. (2001). 'Growth opportunities and earning management', *Managerial Finance*, Vol. 27, No. 12, pp. 72-81.

Anderson, R.C, Mansi, S.A. and Reeb, D.M. (2003). 'Founding family ownership and the agency cost of debt', *Journal of Financial Economics*, Vol. 68, No. 2, pp. 263-285.

Ang, J. and Peterson, P.P. (1984). 'The Leasing Puzzle', *The Journal of Finance*, Vol 39, No 4, pp 1055-1065.

Armstrong, C., Barth, M.E., Jagolinzer, A. and Riedl, E.J. (2008). 'Market Reaction to the Adoption of IFRS in Europe', *Accounting Review, Forthcoming*.

Ashcraft, A.B. and Santos, J.A.C. (2009). ' Has the CDS market lowered the cost of corporate debt?', *Journal of Monetary Economics*, Vol. 56, No. 4, pp. 514-523.

Athianos S., Vazakides A. and Dritsakis N. (2005). 'Financial Statement Effects of Adopting International Accounting Standards: The Case of Greece', *4th Conference of the Hellenic Finance and Accounting Association*, Piraeus, Greece.

Aussenegg, W., P. Inwinkl, and Scheider G.T. (2008). 'Earnings Management and Local vs. International Accounting Standards of European Public Firms', available on the internet at http://ssrn.com/abstract=1310346.

Avgerou, C. (2002). '*Information systems and global diversity',* Oxford University Press, New York.

Baiman, S. and Verrecchia, R.E. (1996). 'The Relation among Capital Markets, Financial Disclosure, Production Efficiency, and Insider Trading', *Journal of Accounting Research*, Vol. 34, pp 1-22.

Baker, M. and Wurgler, J. (2002). 'Market Timing and Capital Structure', *The Journal of Finance*, Vol. LVII, No. 1, pp. 1-32.

Ball, R. (2005). 'IFRS: Pros and Cons for Investors', based on the PD Leake Lecture delivered on 8 September 2005 at the Institute of Chartered Accountants in England and Wales, which can be accessed at http://www.icaew.co.uk/cbp/index.cfm

Ball, R., Bushman, R. and Vasvari, F.P. (2008). 'The debt-contracting value of accounting information and loan syndicate structure', *Journal of Accounting Research*, Vol. 46, No. 2, pp. 247-288.

Ball, R., Kothari, S.P. and Robin, A. (2000). 'The effect of international institutional factors on properties of accounting earnings', *Journal of Accounting and Economics*, Vol. 29, No. 1, pp. 1–51.

Ball, R., Robin, A. and Wu J.S. (2003). 'Incentives versus standards: properties of accounting income in four East Asian countries, and implications for acceptance of IAS', *Journal of Accounting and Economics*, Vol. 36, No. 1–3, pp. 235– 270.

Ballas, A.A. (1994). 'Accounting in Greece', *European Accounting Review*, Vol. 3, No.1, pp. 107-121.

Ballas, A.A. (1998). 'The creation of the auditing profession in Greece', *Accounting, Organizations and Society*, Vol. 23, No. 8, pp. 716–36.

Ballas, A.A., Hevas, D. and Neil, D. (1998). 'The state of accounting and the state of the state', *Journal of Management and Governance*, Vol. 2, No.3, pp. 267-285.

Banerjee, S., Heshmati, A. and Wihlborg, C. (2000). 'The Dynamics of Capital Structure', SSE/EFI, *Working Paper Series in Economics and Finance*, No. 333, Sweden.

Bange, M.M. and De Bondt, W.F.M. (1998). 'R & D Budgets and corporate earnings targets', *Journal of Corporate Finance*, Vol 4, pp. 153-184.

Baralexis, S. (2004). 'Creative accounting in small countries: the Greek case', *Managerial Auditing Journal*, Vol. 19, No. 3, pp. 440-461.

Barclay, M.J. and Smith, C.W. (1995). 'The Maturity Structure of Corporate Debt', *Journal of Finance*, Vol. 50, No. 2, pp. 609-631.

Barth, M.E., Elliott J.A. and Finn. M.A. (1999). 'Market Rewards Associated with Patterns of Increasing Earnings', *Journal of Accounting Research*, Vol. 37, pp. 387-413.

Barth, M.E., Landsman, W.R. and Lang, M.H. (2008). 'International Accounting Standards and Accounting Quality', *Journal of Accounting Research,* Vol. 46, No. 3, pp. 467-498.

Barry, C. and Brown S. (1985). 'Differential Information and Security Market Equilibrium', *Journal of Financial and Quantitative Analysis*, Vol. 20, No. 4, pp. 407–22.

Baskin, J. (1989). 'An Empirical Investigation of the Pecking Order Theory', *Financial Management,* Vol. 18, pp. 26-35.

Bauer, P. (2004). 'Determinants of Capital Structure: Empirical Evidence from the Czech Republic', *Czech Journal of Economics and Finance,* Vol. 54, No. 1-2, pp. 1-21.

Bauwhede, H.V., Willekens, M. and Gaeremynck, A. (2003). 'Audit firm size, public ownership, and firms' discretionary accruals management', *The International Journal of Accounting*, Vol. 38, pp. 1-22.

Baxter, N. (1967). 'Leverage, Risk of Ruin and the Cost of Capital', *Journal of Finance,* Vol. 22, No. 3, pp. 395-403.

Bazaz, M. and Senteney, D. (2001). 'Value relevance of unrealized foreign currency translation gains and losses', *American Journal of Business,* Vol. 16, No. 2, pp. 55–62.

Beatty, A. and Harris, D.G. (2001). 'Intra-Group interstate strategic income management for tax, financial reporting, and regulatory purposes', *The Accounting Review*, Vol. 76, No. 4, pp. 515-536.

Beaver, W.H., McNichols, M.F. and Nelon, K.K. (2003). 'Management of the loss reserve accruals and the distribution of earnings in the property-casualty insurance industry', *Journal of Accounting and Economics,* Vol. 35, No. 3, pp. 347-376.

Becker, C., DeFond, M., Jiambalvo, J. and Subramanyam, K.R. (1998). 'The effect of audit quality on earnings management', *Contemporary Accounting Research, Vol.* 15 (Spring), pp. 1-24.

Bellas A., Toudas K. and Papadatos C. (2007). 'The consequences of applying International Accounting Standards (IAS) to the financial statements of Greek companies', *30th Annual Congress of European Accounting Association*, 25-27 April, Lisbon, Portugal.

Bellas, A. and Tzovas, C. (2008). 'The Effects of Dependency on Debt Financing On Financial Reporting Policy: The Case of Greece', *European Research Studies Journal*, Vol. 11, No. 1-2, pp. 13-30.

Bellovary, J.L., Giacomino, D.E and Akers, M.D. (2005). 'Earnings Quality: It's Time to Measure and Report', *The CPA Journal*, Vol. 75, No. 11, p. 32-37.

Bevan, A. and Danbolt, J. (2002). 'Capital Structure and Its Determinants in the UK – A Decomposition Analysis', *Applied Financial Economics*, Vol. 12, No. 3, pp. 159-170.

Bevan, A. and Danbolt, J. (2004). 'Testing for Inconsistencies in the Estimation of UK Capital Structure Determinants', *Applied Financial Economics*, Vol. 14, No. 1, pp. 55-66.

Bhaduri, S. (2002). 'Determinants of Corporate Borrowing: Some Evidence from the Indian Corporate Structure', *Journal of Economics and Finance*, Vol. 26, pp. 200-215.

Bharath, S., Sunder, J. and Sunder, S.V. (2008). 'Accounting quality and debt contracting', *The Accounting Review*, Vol. 83, pp. 1-28.

Blake, J. and Salas, O.A. (1996). 'Creative accounting is not just an English disease', *Management Accounting*, Vol. 74, pp. 54-55.

Botosan, C. and Plumlee, M. (2002). 'A Re-examination of Disclosure Level and the Expected Cost of Equity Capital', *Journal of Accounting Research*, Vol. 40, No. 1, pp. 21–40.

Booth, L., Aivazian, V., Demirguc-Kunt, A. and Maksimovic, V. (2001). 'Capital Structures in Developing Countries', *Journal of Finance*, Vol. 56, No. 1, pp. 87-130.

Bowen, R.M., Burgstahler, D. and Daley L.A. (1986). 'Evidence on the Relationships Between Earnings and Various Measures of Cash Flow', *The Accounting Review*, Vol. 61, No. 4, pp. 713-725.

Bowen, R.M., Daley, L.A. and Huber C.C. (1982). 'Evidence on the Existence and Determinants of Inter-Industry Differences in Leverage', *Financial Management*, Vol. 11, No. 4, pp. 10-20.

Bowman, R.G. (1980). 'The Importance of a Market-Value Measurement of Debt in Assessing Leverage', *Journal of Accounting Research*, Vol. 18, No. 1, pp. 242-254.

Bradley, M., Jarrell, G. and Kim, E.H. (1984). 'On the Existence of an Optimal Capital Structure: Theory and Evidence', *Journal of Finance,* Vol. 39, No. 3, pp. 857-878.

Brealey R.A. and Myers, S.C. (2002). '*Principles of Corporate Finance',* Seventh Edition

Breuer, P. (2002). 'Measuring Off-Balance-Sheet Leverage', Journal of Banking and Finance, Vol 26, No. 2-3, pp. 223-242.

Bronchi, C. (2002). 'Options for Reforming the Tax System in Greece', Working Papers No. 193/2002, OECD Economics Department, OECD Publishing.

Brounen, D., Jong, A.D. and Koedijk, K. (2005). 'Capital Structure Policies in Europe: Survey Evidence', *Journal of Banking and Finance,* Vol. 30, No. 5, pp. 1409-1442.

Brown, L. (2001). 'A Temporal Analysis of Earnings Surprises: Profits Versus Losses', *Journal of Accounting Research,* Vol. 39, No. 2, pp. 221–41.

Brown, P. (2011). 'International Financial Reporting Standards: what are the benefits?', *Accounting and Business Research,* Vol. 41, No. 3, pp. 269-285.

Burgstahler, D. and Dichev, I. (1997). 'Earnings management to avoid earnings decreases and losses', *Journal of Accounting and Economics*, Vol. 24, pp. 99-126.

Bushman, R.M., and Smith A.J (2001). 'Financial Accounting Information and Corporate Governance', *Journal of Accounting and Economics,* Vol. 32, pp. 237–333.

Bushman, R.M., and Smith A.J (2003). 'Transparency, Financial Accounting Information, and Corporate Governance', *FRBNY Economic Policy Review,* Vol. 9, pp. 65–87.

Buzby, S.L. (1975). 'Company Size, Listed Versus Unlisted Stocks, and the Extent of Financial Disclosure', *Journal of Accounting Research,* Vol. 13, No. 1, pp. 16-37.

Cai, L., Rahman, A.R. and Courtenay, S.M. (2008). 'The effect of IFRS and its Enforcement on earnings Management: An International Comparison', available on the internet at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1473571, visited on 10/10/12.

Calomiris, W., Orphanides, A., Sharpe, S. (1994). 'Leverage as a State Variable for Employment, Inventory Accumulation, and Fixed Investment', *Finance and*

Economics Discussion Series, No. 92-24, Board of Governors of the Federal Reserve System (U.S).

Capkun, V., Cazavan, A., Jeanjean, T. and Weiss L.A. (2008). 'Earnings Management and Value Relevance during the Mandatory Transition from Local GAAPs to IFRS in Europe', available on the internet at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1125716, visited on 12/07/11.

Capkun, V., Collins, D.W. and Jeanjean T. (2012). 'Does Adoption of IAS/IFRS Deter Earnings Management?', available on the internet at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1850228, visited on 09/10/12.

Caramanis, C. (2002). 'The interplay between professional groups, the state and supranational agents: Pax Americana in the age of globalisation', *Accounting, Organizations and Society*, Vol. 27, No. 4-5, pp. 379-408.

Caramanis, C. (2005). 'Rationalisation, charisma and accounting professionalisation: perspectives on the intra-professional conflict in Greece, 1993-2001', *Accounting, Organizations and Society*, Vol. 30, pp. 195-221.

Caramanis C. and Papadakis V. (2008). 'Implementation of IFRS in Greece", *Athens University of Economics and Business*, (in Greek).

Central Security Depository (2006). Statistical Bulletin available on the internet at http://www.hcsd.gr/files/en/nfo/MSD200612.pdf

Chaney, P.K. and Lewis, C.M. (1998). 'Income smoothing and underperformance in initial public offerings', *Journal of Corporate Finance*, Vol. 4, pp. 1-29.

Chang, C., Lee, A.C. and Lee, C.F. (2009). 'Determinants of capital structure choice: A structural equation modelling approach', *The Quarterly Review of Economics and Finance*, Vol. 49, pp. 197-213.

Chen, C.Y., Lin, C.J. and Lin, Y.C. (2008). 'Audit Partner Tenure, Audit Firm Tenure and Discretionary Accruals: Does Long Auditor Tenure Impair Earnings Quality?', *Contemporary Accounting Research*, Vol. 25, No. 2, pp. 415-445.

Chen, J. (2004). 'Determinants of capital structure of Chinese-listed companies', *Journal of Business Research*, Vol. 57, No. 12, pp. 1341-1351.

Chevas, D.L. and Papadaki, A.I. (2004). '*Greek General Accounting Principles'*, Press: Economic University of Athens.

Chiarella, C., Pham, T., Sim, A.B. and Tan, M. (1991). 'Determinants of Corporate Capital Structure: Australian Evidence', Working Paper No. 3, School of Finance and Economics, University of Technology, Sydney.

Chow, C. and Wong-Boren, A. (1987). 'Voluntary financial disclosure by Mexican corporations', *The Accounting Review*, Vol. 62, No. 3, pp. 533–541.

Christensen, H.B., Lee, E. and Walker, M. (2009). 'Do IFRS/UK-GAAP reconciliations convey information? The effect of debt contacting', *Journal of Accounting Research*, Vol. 47, pp. 1167-1199.

Christidis, G. (2007). 'We belong to…Africa', Macedonia Newspaper, Thessloniki, Greece (27/09/2007, in Greek).

Clarkson, P., Guedes, J. and Thompson, R. (1996). 'On the Diversification, Observability, and Measurement of Estimation Risk', *Journal of Financial and Quantitative Analysis*, Vol. 31, No. 1, pp. 69–84.

Collins, J., Shackelford, A. and Wahlen, J. (1995). 'Bank differences in the coordination of regulatory capital earnings and taxes', *Journal of Accounting Research*, Vol. 33, No. 2, pp. 263-291.

Committee on Corporate Governance in Greece (1999). '*Principles on Corporate Governance in Greece: Recommendations for its Competitive Transformation'*, under the coordination of the Capital Market Commission, Athens

Connelli, F. and Felli, L. (1995). 'The Theory of Bankruptcy and Mechanism Design', in *Crisis, What Crisis? Orderly Workouts for Sovereign Debtors*, by B. Eichengreen and R. Portes, London: CEPR

Covrig, V.M., Defond, M.L., and Hung, M. (2007). 'Home bias, foreign mutual fund holdings, and the voluntary adoption of international accounting standards', *Journal of Accounting Research,* Vol. 45, No. 1, pp. 41-70.

Crnigoj, M. and Mramor, D. (2009). 'Determinants of Capital Structure in Emerging European Economies: Evidence from Slovenian Firms', *Emerging Market Finance and Trade,* Vol. 45, No. 1, pp. 72-89.

Cuijpers, R. and Buijink, W. (2005). 'Voluntary adoption of non-local GAAP in the European Union: a study of determinants and consequences', *European Accounting Review*, Vol. 14, No. 3, pp. 487-524.

Darrough, M.N., Pourjali, H. and Sandagaran, S. (1999). 'Earnings management in Japanese companies', *The International Journal of Accounting*, Vol. 33, No. 3, pp. 313-334.

Daskalakis, A. and Daskalakis, I. (2009). 'The Greek GAAP and its accounts', University of Crete, School of Accounting (in Greek).

Daske, H., Hail, L., Leuz, C. and Verdi R. (2011). 'Adopting a Label: Heterogeneity in the Economic Consequences around Voluntary and IFRS Adoptions', Working paper, University of Pennsylvania and University of Chicago, available on the internet at http://ssrn.com/abstract=979650.

Daske, H., Hail, L., Leuz, C. and Verdi, R.S. (2008). 'Mandatory IFRS Reporting Around the World: Early Evidence on the Economic Consequences', *Journal of Accounting Research*, Vol. 46, No. 5, pp. 1085-1142.

Davidson, S., Stickney, C. and Weil, R (1987). '*Accounting: The Language of Business'*, Seventh edition, Thomas Horton and Daughter, Arizona.

DeAngelo, H., DeAngelo, L. and Skinner, D.J. (1994). 'Accounting choice in troubled companies', *Journal of Accounting and Economics*, Vol. 17, pp. 113-143.

DeAngelo, H. and Masulis, R. (1980). 'Optimal Capital Structure under Corporate and Personal Taxation', *Journal of Financial Economics,* Vol. 8, pp. 3-29.

DeAngelo, L.E. (1986). 'Accounting numbers as market valuation substitutes: A study of management buyouts of public stockholders', *The Accounting Review*, Vol. 61, No. 3, pp. 400-420.

DeAngelo, L.E. (1988). 'Managerial competition, information costs, and corporate governance – The use of accounting performance measures in proxy contests', *Journal of Accounting and Economics*, Vol. 10, No. 1, pp. 3-36.

Dechow, P. (1994). 'Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals', *Journal of Accounting and Economics*, Vol. 18, pp. 3-42.

Dechow, P.M., and Skinner, D.J. (2000). 'Earnings management: Reconciling the views of accounting academics, practitioners, and regulators', *The Accounting Review,* Vol. 14 No 2, pp. 235-250.

Dechow, P.M., Sloan, R.G. and Sweeney, A.P. (1995). 'Detecting earnings management', *The Accounting Review*, Vol. 70, pp. 193–225.

Dechow, P.M., Sloan, R.G. and Sweeney, A.P. (1996). 'Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC', *Contemporary Accounting Research*, Vol. 13, No. 1, pp. 1-36.

Deegman, C. and Unerman, J. (2006). '*Financial Accounting Theory'*, The McGraw-Hill Companies, pp. 205-266.

Degeorge, F., Patel, J. and Zeckhauser, R. (1999). 'Earnings Management to Exceed Thresholds', *Journal of Business,* Vol. 72, No. 1, pp. 1-33.

Delcoure, N. (2007). 'The determinants of capital structure in transitional economies', *International Review of Economic and Finance,* Vol. 16, pp. 400-415.

Deng, S., Elyasiani, E. and Mao, C.X. (2007). 'Diversification and the cost of debt of bank holding companies', *Journal of Banking and Finance,* Vol. 31, pp. 2453-2473.

Dhaliwal, D.S., Gleason, C.A., Heitzman, S. and Melendrez, K.D. (2008). 'Auditor Fees and Cost of Debt', *Journal of Accounting, Auditing and Finance,* Vol. 23, No. 1, pp. 1-22.

Diakomichalis M. and Toudas, K. (2007). 'Differences in the valuation of equity of firms after the implementation of IFRS: An empirical approach', *6th Annual Congress of Hellenic Financial and Accounting Association*, December, Patra.

Diamond, D and Verrecchia, R. (1991). 'Disclosure, Liquidity, and the Cost of Capital', *Journal of Finance,* Vol. 66, No. 4, pp. 1325–55.

Ding, Y., Hope, O.L., Jeanjean, T. and Stolowy, H. (2007). 'Differences between domestic accounting standards and IAS: Measurement, determinants and implications', *Journal of Accounting and Public Policy*, Vol. 26, pp 1-38.

Downs, G.W. and Rocke, D.M. (1979). 'Interpreting Heteroscedasticity', *American Journal of Political Science,* Vol. 23, No. 4, pp. 816-828.

DuCharme, L.L., Malatesta, P.H. and Sefcik, S.E. (2003). 'Earnings management, stock issues and shareholder lawsuits', *Journal of Financial Economics*, Vol. 71, pp. 27-49.

Easley, D. and O'Hara, M. (2004), 'Information and the Cost of Capital', *The Journal of Finance,* Vol. 56, No. 4, pp. 1553–79.

Editorial (2002). 'Creative accounting: the investors' confidence is lurched', I Kathimerini, 28 June 2002 (in Greek).

Epstein, B.J. and Jermakowicz E.K. (2007). '*Interpretation and Application of International Financial Reporting Standards*', John Wiley & Sons, pp. 91–97.

Erickson, M. and Wang, S.W. (1999). 'Earnings management by acquiring firms in stock for stock mergers', *Journal of Accounting and Economics*, Vol. 27, pp. 149-176.

Eriotis, N., Vasiliou, D. and Ventoura-Neokosmidi, Z. (2007). 'How Firm Characteristics Affect Capital structure: An Empirical Study', *Managerial Finance*, Vol. 33, No. 5, pp. 321-331.

European Commission Report (undated) 'Bankruptcy and a fresh start: stigma on failure and legal consequences of bankruptcy', available on the internet at http://ec.europa.eu/enterprise/policies/sme/files/sme2chance/doc/report_gree_en.pdf, visited on 05/10/11.

Ewert, R. and Wagenhofer A. (2005). 'Economic effects of tightening accounting standards to restrict earnings management', *The Accounting Review*, Vol. 80, No. 4, pp. 1101-24

Fama, E. (1985). 'What's Different aboutBanks', *Journal of Monetary Economics*, Vol. 15, pp. 29–39.

Feroz, E.H., Park, K. and Pastena, V.S. (1991). 'The financial and market effects of the SEC's accounting and auditing enforcement releases', *Journal of Accounting Research*, Vol. 29 (supplement), pp. 107-142.

Filios, V.F. (1995). '*Accounting for the economic development'*, [Translation], Synchroni Ekdotiki, Athens.

Fisher, L. (1959). 'Determinants of risk premiums on corporate bonds', *The Journal of Political Economy*, Vol. 67, pp. 217-237.

Flannery, M.J. and Rangan, K.P. (2006). 'Partial Adjustment Target Capital Structures', *Journal of Financial Economics*, Vol. 79, pp. 469-506.

Floropoulos J. (2003). 'IAS. First time users: some empirical evidence from Greek companies', *2nd Conference of the Hellenic Financial and Accounting Association (HFAA)*, November, Athens.

Floropoulos J. (2006). 'IFRS. First time users: some empirical evidence from Greek companies', *Spoudai*, Vol. 56, No. 3, pp. 39-70.

Floropoulos J. and Moschidis O. (2004). 'Are Small Enterprises Ready for the Implementation of IFRS? The case of Greece', *Journal of Economics and Business*, Vol. 7, No 2, pp.81-116.

Floros, C. (2007). 'The effects of International Accounting Standards on stock market volatility: the case of Greece', *Investment Management and Financial Innovations*, Vol. 4, No. 1, pp. 61-72.

Florou, A. and Galarniotis, A., (2007). 'Benchmarking Greek corporate governance against different standards', *Corporate Governance: an international review*, Vol. 15, No.5, pp. 979-998.

Florou A. and Kosi U. (2009), 'The Economic Impact of Mandatory IFRS Adoption for Debt Financing', INTACCT Working Paper No. MRTN-CT-2006-035850 INTACCT , available on the internet at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1508324 visited on 05/02/10.

Francis, J.R., Khurana, I.K and Pereira, R. (2005). 'Disclosure Incentives and Effects on Cost of Capital around the World', *The Accounting Review*, Vol. 80, No. 4, pp. 1125-1162.

Frank, M. and Goyal, V. (2009). 'Testing the Pecking Order Theory of Capital Structure', *Journal of Financial Economics*, Vol. 67, pp. 217-248.

Frankel, R.M., Johnson, M.F. and Nelson, K.K. (2002). 'The Relation between Auditors' Fees for Nonaudit Services and Earnings Management', *The Accounting Review*, Vol. 77, Supplement, pp. 71-105.

Friedman, M. (1953). '*The Methodology of Positive Economics, Essays in Positive Economics'*, reprinted in 1966 by Phoenix Books edn, Chicago: University of Chicago Press.

Friend, I. and Hasbrouck, J. (1988). 'Determinants of capital structure. In Andy Chen (ed.)', *Research in Finance*, Vol. 7, New-York: JAI Press, pp. 1-19.

Fung, W. and Rudd, A. (1986). 'Pricing new corporate bond issues: An analysis of issue cost and seasoning effects', *Journal of Finance*, Vol. 41, pp. 633-645.

Galegari, M.I. (2000). 'The effect of tax accounting rules on capital structure and discretionary accruals', *Journal of Accounting and Economics*, Vol. 30, pp. 1-31.

Garefalakis, A.E., Dimitras, A. and Zisis, P.V. (2011). *'Examining the extent to which the implementation of IFRS has affected the financial and narrative reporting. Evidence from the Greek banking sector'*, 8th International Conference on Enterprise Systems, Accounting and Logistics, Thassos, Greece.

Georgakopoulou, E., Spathis, C. and Floropoulos I. (2010). 'The transition from the Greek accounting system to IFRS: Evidence from the manufacturing sector', *International Journal Managerial and Financial Accounting*, Vol. 2, No. 1, pp. 4-19.

Georgiadis, H.N. (1990). 'Stock Exchange: What is it and how does it work?', *Investment Research and Analysis Journal*, Speech Republication

Ghandhi, J.K.S. (1966). 'On the Measurement of Leverage', *The Journal of Finance*, Vol. 21, No. 4, pp. 715-72.

Gill, A., Biger, N., Pai, C. and S. Bhutani (2009). 'The Determinants of Capital Structure In the Service Industry: Evidence from United States', *The Open Business Journal,* Vol. 2, pp. 48-53.

Gisaki, E. (2010). 'Leasing Finance', University of Macedonia, School of Finance.

Goncharov, I. and Zimmermann, J. (2006). 'Do accounting standards influence the level of earnings management? Evidence from Germany', Working Paper, University Bremen, available on the internet at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=386521 visited on 10/08/07.

Graham, J., Harvey, C. and Rajgopal, S. (2005). 'The Economic Implications of Corporate Financial Reporting', *Journal of Accounting and Economics,* Vol. 40, No. 1–3, pp. 3–73.

Graham, J.R., Li, S. and Qiu, J. (2008). 'Corporate misreporting and bank loan contracting' *Journal of Financial Economics,* Volume 89, No. 1, pp. 44-61.

Grant Thornton (2006), 'Study on the impact of IFRS application on Greek Listed companies in the Athens Stock Exchange (ASE)', June, *www.grant-thornton.gr* (in Greek).

Grant Thornton and Athens University of Economics and Business (AUEB) (2003). 'How ready are the Greek companies to adopt IFRS?', [Translation], Athens.

Grant Thornton and Athens University of Economics and Business (AUEB) (2005). 'Grant Thornton and AUEB present the findings of Corporate Governance survey for 2005, undertaken for first time…'[Translation], Athens.

Grant Thornton and Athens University of Economics and Business (AUEB) (2006). 'Grant Thornton and AUEB present the findings of Corporate Governance survey for 2006', [Translation], Athens.

Gray, P., Koh, P.S. and Tong, Y.H. (2009). 'Accruals Quality, Information Risk and Cost of Capital: Evidence from Australia', *Journal of Business, Finance and Accounting,* Vol. 36, No. 1-2, pp. 51-72.

Gray, S., (1988). 'Towards a theory of cultural influence on the development of accounting systems internationally', *Abacus,* Vol. 24, No. 1, pp. 1-15.

Gros, D. and Alcidi, C. (2011). 'Adjustment Difficulties and Debt Overhangs in the Eurozone Periphery', Centre for European Policy Studies, Working Document No. 347.

Gujarati, D.N., (2003). *Basic Econometrics,* 4th Edition, Irwin/McGraw-Hill: New York.

Hackbarth, D., Hennessy, C. A., and Leland, H. E. (2007). 'Can the Trade-off Theory Explain Debt Structure?', *Review of Financial Studies*, Vol. 20, pp. 1389–1428.

Hardouvelis, G., Lekkos, I. and Simintzi, E. (2006). '*The Greek Banking System in 2006: Comparative Performance*', Eurobank Research, Eurobank EFG.

Harford, J. (2005). 'What drives merger waves?', *Journal of Financial Economics*, Vol. 77, pp. 529-560.

Harris, M. and A. Raviv (1991). 'The Theory of Capital Structure', *Journal of Finance*, Vol. 46, No. 1, pp. 297-355.

Hayn, C. (1995). 'The information content of losses', *Journal of Accounting and Economics*, Vol. 20, pp. 125-153.

Healey, P. (1985). 'The effect of bonus schemes on accounting decisions', *Journal of Accounting and Economics*, Vol. 7, pp. 85-107.

Healy, P. Hutton, A. and Palepu K. (1999) 'Stock Performance and Intermediation Changes Surrounding Sustained Increases in Disclosure', *Contemporary Accounting Research*, Vol. 16, No. 3, pp. 485–520.

Healey, P.M. and Palepu, K.G. (1990). 'Effectiveness of accounting based dividend covenants', *Journal of Accounting and Economics*, Vol. 123, No. 1-3, pp. 97-123.

Healy, P.M., and Palepu, K.G. (1993). 'The Effect of Firm's Financial Disclosure Strategies on Stock Prices', *Accounting Horizons*, Vol. 7, No. 1, pp. 1-11.

Healy, P.M. and Wahlen, J. (1999). 'A Review of the Earnings Management Literature and its Implications for Standard Setting, *Accounting Horizons*, Vol. 13, No. 4, pp. 365-384.

Hellenic Capital Market Commission, (2006). 'Study on the impact of IFRS on the financial statements of Greek listed companies in the Athens Stock Exchange', *www.hcmc.gr (in Greek).*

Hellenic Exchanges Group (2008). 'Reviewing Developments at Athens Exchange', Financial Times Conference 'Banking on Greece', Strategic Planning, Communication & IR Division.

Holthausen R.W. and Leftwich R.W. (1983). 'The Economic Consequences of Accounting Choice Implications of Costly Contracting and Monitoring', *Journal of Accounting and Economics*, Vol. 5, No. 2, pp. 77 – 117.

Hossain, M.,. Perera, M.H.B, and Rahman. A.R. (1995). 'Voluntary Disclosure in the Annual Reports of New Zealand Companies', *Journal of International Financial Management & Accounting,* Vol. 6, No. 1, pp. 69-87.

Hribar, P. and Collins, D. (2002). 'Errors in estimating accruals: Implications for empirical research', *Journal of Accounting Research,* Vol. 40, No. 1, pp. 105-134.

Huang, S.G. and Song, F.M. (2006). 'The Determinants of Capital Structure: Evidence from China', *China Economic Review*, pp. 1-23.

I Kathimerini (2011). 'ATHEX index drops below 1,000 points', (08/08/11, in Greek).

IAS PLUS (2012a). 'IAS 12', Deloitte, available on the internet at http://www.iasplus.com/en/standards/standard11.

IAS PLUS (2012b). 'IAS 19', Deloitte, available on the internet at http://www.iasplus.com/en/standards/standard17.

IAS PLUS (2012c). 'Summaries of International Financial Reporting Standards: IAS 2 Inventories', Deloitte.

Iatridis, G. (2008). 'Accounting disclosure and firms' financial attributes: Evidence from the UK stock market', *International Review of Financial Analysis,* Vol. 17, pp. 219–241.

Iatridis, G. (2010). 'IFRS Adoption and Financial Statement Effects: The UK Case', *International Research Journal of Finance and Economics*, Vol. 38, pp. 165-172.

Iatridis, G. and Dalla, K. (2011). 'The impact of IFRS implementation on Greek listed companies: An industrial sector and stock market index analysis', *International Journal of Managerial Finance,* Vol. 7, No. 3, pp. 284-303.

Iatridis G. and Rouvolis S. (2010), 'The post – adoption effects of the implementation of International Financial Reporting Standards in Greece', *Journal of International Accounting, Auditing and Taxation,* Vol. 19, pp 55 – 65.

Iatridis, G. and Vilahi, S. (2010). 'Voluntary IAS 1 accounting disclosures prior to official IAS adoption: An empirical investigation of UK firms', *Research in International Business and Finance,* Vol. 24, pp. 1-14.

IFRS (2010). 'About the IFRS Foundation and the IASB', available on the internet at http://www.ifrs.org/The-organisation/Pages/IFRS-Foundation-and-the-IASB.aspx visited on 10/10/10.

IFRS (2012). 'IAS 32 Financial Instruments: Presentation', Technical Summary.

Iliokaftos, I.D., (2005). *Practical guide on Société Anonyme*, Kaitatzi Bros Publications, Athens (in Greek).

Ilios Encyclopedia (1955). 1st Edition, Vol. 18, pp. 729 (in Greek)

Internal Revenue Service (2012). 'A Brief Overview of Depreciation', Available on the internet at http://www.irs.gov/Businesses/Small-Businesses-&-Self-Employed/A-Brief-Overview-of-Depreciation, visited on 19/10/12.

International Monetary Fund (2011). 'Using forecasts for 2011', World Economic Outlook.

Ismail, W., Dunstan, K. and Van Zijl, T. (2010). 'Earnings quality and the adoption of IFRS-based accounting standards: Evidence from an emerging market', available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1566634, visited on 03/03/12.

Jeanjean, T., Lesage, C. and Stolowy, H. (2008). 'Why do You speak English (in Your Annual Report', available on the internet at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1284489, visited on 25/03/12.

Jeanjean, T. and Stolowy, H. (2008). 'Do accounting standards matter? An exploratory analysis of earnings management before and after IFRS adoption', *Journal of Accounting and Public Policy*, Vol.27, pp 480-494.

Jensen, M. and Meckling, W. (1976). 'The theory of the Firm: Managerial Behaviour, Agency Costs, and Ownership Structure', *Journal of Financial Economics*, Vol. 3, No. 4, pp. 305-360.

Jones, J. (1991). 'Earnings management during import relief investigations', *Journal of Accounting Research*, Vol. 29, No. 2, pp. 193–228.

Kadapakkam, P., Kummar, P. and Riddick, L. (1998) 'The Impact of Cash Flows and Firm Size on Investment: the International Evidence', *Journal of Banking and Finance*, Vol. 22, No. 3, pp. 293-320.

Kakavoulis, S. (2006). 'Greek General Accounting Project', Personal Publication.

Kandilidis, S. and Paraskelidis, K. (2008). 'Companies' financing in the prefecture of Ksanthi', Technological Institue of Thessaloniki, School of Management and Economics *(in Greek).*

Kanellopoulos, K., Koussoulakis, I., Rapanos, B., Kotsi, K. and Makropoulou, A. (1995), *Blacki economy and tax evasion: Measurement and financial consequences (in Greek).*

Karamanou, I. and Nishiotis, G.P. (2009). 'Disclosure and the Cost of Capital: Evidence from the Market's Reaction to Firm Voluntary Adoption of IAS', *Journal of Business Finance and Accounting*, Vol. 36, No. 7-8, pp. 739-821.

Karagiorgos, T. and Papadopoulos, D. (2003). *'Introduction to Financial Accounting'*, Germanos, Thessaloniki.

Kasanen, E., Kinnunen, J. and Niskanen, JU. (1996). 'Dividend-based earnings management: Empirical evidence from Finland', *Journal of Accounting and Economics*, Vol. 22, pp. 283-312.

Kester, W.C. (1986). 'Capital and Ownership Structure: A Comparison of United States and Japanese Manufacturing Corporations', *Financial Management*, Vol. 15, No. 1, pp. 5-16.

Kim, J.B., Song, B.Y. and Zhang, L. (2011). 'Internal control weakness and bank loan contracting: Evidence from SOX section 404 disclosures', *The Accounting Review*, Vol. 86, No. 4, pp. 1157-1188.

Kim, J.B., Tsui, J.S.L. and Yi, C.H. (2010). 'The Voluntary Adoption of International Financial Reporting Standards and Loan Contracting around the World', *Review of Accounting Studies*, Vol. 16, No. 4, pp. 779-811.

Kotsios-Kontokotsios, P. and Negkakis, C. (2007). 'The impact of IAS/IFRS adoption on shareholders' equity and net income of the companies listed on the Athens Stock Exchange: An empirical investigation', University of Macedonia, Department of Accounting and Finance (*in Greek*).

Krishnan, S.V. and Moyer, C.R. (1994). 'Bankruptcy Costs and the Financial Leasing Decision', The Journal of The Financial Management Association, Vol. 32, No. 2, pp. 31-42.

Lambert, M., Hubner, G., Michel, P.-A. and Olivier, H. (2006). 'The Impact of International Financial Reporting Standards on Market Microstructure in Europe', CREFI-LSF Working Paper Series No. 06-02.

Lambert, R.A., C. Leuz and Verrecchia, R.E. (2007). 'Accounting Information, Disclosure, and the Cost of Capital', *Journal of Accounting Research*, Vol. 45, No. 2, pp. 385-420.

Lambert, R.A., C. Leuz and Verrecchia, R.E (2012), 'Information Asymmetry, Information Precision, and the Cost of Capital', *Review of Finance*, Vol. 16, No. 1, pp. 1-29.

Land, J. and Lang, M.H. (2002). 'Empirical Evidence on the Evolution of International Earnings', *Accounting Review*, Vol. 77, pp. 115-133.

Lang, M., and Lundholm, R. (1993). 'Cross-sectional determinants of analysts' ratings of corporate disclosures', *Journal of Accounting Research,* Vol. 31, No. 2, pp. 246–271.

Lang, M., Smith Raedy, J. and M. Higgins Yetman (2003). 'How representative are firms that are cross-listed in the United States? An analysis of accounting quality', *Journal of Accounting Research,* Vol. 41, pp. 363–386.

Lang, M., Smith Raedy, J. and Wilson, W. (2006). 'Earnings management and cross listing: Are reconciled earnings comparable to US earnings?', *Journal of Accounting and Economics,* Vol. 42, pp. 255-283.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R.W. (1997). 'Legal determinants of external finance', *The Journal of Finance,* Vol. 52, No. 3, pp. 1131-1150.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. (1998). 'Law and finance', *Journal of Political Economy,* Vol. 106, pp. 1113-1155.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R.W. (2000). 'Investor protection and corporate governance', Journal of Financial Economics, Vol. 58, pp. 3-27.

Lasfer, M.A. (1995). 'Agency Costs, Taxes and Debt: The UK Evidence', *European Financial Management,* Vol. 1, No. 3, pp. 265-285.

Lazarides, T.G., Drimpetas, E., Antoniadis, I. and Georgouvia, I. (2009). 'The Use of Internet as a Mean for Promoting Disclosure and Corporate Governance: The Case of Greece', available on the internet at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1422981, visited on 15.07.09

Lee, E., Christensen, H., Walker, M. (2008). *'Mandating IFRS: Its Impact on the Cost of Equity Capital in Europe', ACCA Research Report 105*. ACCA.

Lee, I., Lochhead, S. and Ritter, J. (1996). 'The costs of raising capital', *The Journal of Financial Research,* Vol. XIX, No. 1, pp. 59-74

Leftwich, R. (1981). 'Evidence of the impact of mandatory changes in accounting principles on corporate loan agreements', *Journal of Accounting and Economics,* Vol. 3, pp. 3-36.

Leontaris, M. (2004). '*General Accounting Project'*, Pamisos Press.

Leuz, C., Nanda, D. and Wysocki, P.D. (2003). 'Earnings management and investor protection: an international comparison', *Journal of Financial Economics,* Vol. 69, pp. 505-527.

Leuz, C. and Verrecchia, R.E. (2000). 'The Economic Consequences of Increased Disclosure', *Journal of Accounting Research*, Vol. 38(Supplement), pp. 91-124.

Leventis, S., Weetman, P., and Caramanis, C. (2005). 'Determinants of audit report lag: some evidence from the Athens Stock Exchange', *International Journal of Auditing*, Vol. 9, No.1, pp. 45-58.

Li, S. (2010). 'Does Mandatory Adoption of International Financial Reporting Standards in the European Union Reduce the Cost of Equity Capital?', *The Accounting Review*, Vol. 85, No. 2, pp. 607-636.

Lobo, G.J. and Zhou, J. (2001). Disclosure quality and earnings management', *Asia-Pacific Journal of Accounting and Economics*, Vol. 8, No.1, pp. 1-20.

Lopes, P.T. and Rodrigues, L.L. (2007). 'Accounting for financial instruments: An analysis of the determinants of disclosure in the Portuguese stock exchange', *The International Journal of Accounting*, Vol. 42, pp. 25-56.

Mackay, P. and Phillips. G. (2005). 'How does industry affect firm financial structure?', *Review of Financial Studies*, Vol. 18, pp. 1433-1466.

Makar, S.D. and Alam, P. (2003). 'The Valuation Of Discretionary Accruals And Antitrust Merger Investigations', *The Journal of Applied Business Research*, Vol. 19, No. 1, pp. 57-74.

Malone, D., Fries, C., and Jones, T. (1993). 'An empirical investigation of the extent of corporate disclosure in the oil and gas industry' *Journal of Accounting, Auditing and Finance*, Vol. 8, No. 3, pp. 249–273.

Marston, F. and Harris, R.S. (1988). 'Substitutability of Leases and Debt in Corporate Capital Structures', *Journal of Accounting, Auditing and Finance,* Vol. 3, No. 2, pp. 147-170.

Mavridis, D.G. (2002). 'Disclosed Information Aspects in Greek Interim Reports', *Management Research News*, Vol. 25, No. 11, pp. 1-22.

McNichols, M., Rajan, M.V. and Reichelstein, S. (2010). 'Decomposition of the market-to-book ratio: theory and evidence', Working paper, Stanford University.

McNichols, M., Wilson, G.P. and DeAngelo, L. (1988). 'Evidence of earnings management from the provision for bad debts', *Journal of Accounting Research*, Vol. 26, pp. 1–40.

Miguel, A.D. and Pindado, J. (2001). 'Determinants of Capital Structure: New Evidence from Spanish Panel Data', *Journal of Corporate Finance,* Vol. **7**, pp. 77-99.

Miles, S. and Nobes, C. (1998). 'The use of foreign accounting data in UK financial institutions', *Journal of Business Finance and Accounting*, Vol. 25, No. 3 and 4, pp 309-328.

Modigliani, F. and Miller, M. (1958). 'The Cost of Capital, Corporate Finance and the Theory of Investment', *American Economic Review*, Vol. 48, pp. 261-297.

Modigliani, F and Miller, M. (1963). 'Corporate Income Taxes and the Cost of Capital, A Correction', *American Economic Review,* Vol. 53, pp. 433-443.

Mosciarello, N., Pizzo, M. and Skerrat, L. (2011). 'The Impact of the IFRS on the Debt Contracting Process: A Comparison Between UK and Italy', available on the internet at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1870065, visited on 18/11/11.

Myers, S. (1977). 'Determinants of Corporate Borrowing', *Journal of Financial Economics,* Vol. 5, pp. 147-75.

Myers, S. (1984). 'The Capital Structure Puzzle', *Journal of Finance*, Vol. 39, pp. 575-592.

Myers, S. and Majluf, N. (1984). 'Corporate Finance and Investment Decisions When Firms Have Information That Investors Do not Have', *Journal of Financial Economics,* Vol. 13, pp. 187-221.

Myers L, Myers, L.A. and Skinner, D.J. (2007). 'Earnings momentum and earnings management', *Journal of Accounting, Auditing and Finance,* Vol. 22, No. 2, pp. 249-284.

Nair, R.D. and Frank, W.G. (1981). 'The Harmonization of International Accounting Standards, 1973-1979', *International Journal of Accounting Education and Research*, pp 61-77.

Nelson, R.M., Belkin, P. and Mix, D.E. (2011). 'Greece's Debt Crisis: Overview, Policy Responses, and Implications', Congressional Research Service Report for Congress, Prepared for Members and Committees of Congress.

Nikolaev, V. and Van Lent, L. (2005). 'The endogeneity bias in the relation between cost-of-debt and corporate disclosure policy', *European Accounting Review*, Vol. 14, No. 4, pp. 677-724.

Nobes, C., (1998). 'Towards a general model of the reasons for international differences in financial reporting, *Abacus,* Vol. 34, No. 2, pp. 162-187.

Nobes, C., (2006). 'The survival of international differences under IFRS: towards a research agenda, *Accounting and Business Research*, Vol. 36, No. 3, pp. 233-245.

Nobes, C.W. and Parker, R. (2008). '*Comparative International Accounting'*, London: Prentice Hall

Orens, R., Aerts, W. and Cormier, D. (2010). 'Web-based Non-financial Disclosure and Cost of Finance', *Journal of Business Finance and Accounting*, Vol. 37, No. 9-10, pp. 1057-1093.

OECD (1999). 'Principles on Corporate Governance', Organization for Economic Co-Operation and Development.

Owusu-Ansah, S. (1998). 'The impact of corporate attributes on the extent of mandatory disclosure and reporting by listed companies in Zimbabwe', *International Journal of Accounting*, Vol. 33, No. 5, pp. 91–103.

Ozkan, A. (2001). 'Determinants of Capital Structure and Adjustments to Long Run Target: Evidence from UK Company Panel Data', *Journal of Business Finance & Accounting*, Vol. 28, No. 1 & 2.

Paananen, M. (2008). 'The IFRS Adoption's Effect on Accounting Quality in Sweden', available on the internet at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1097659, visited on 04/05/09.

Paananen, M. and Lin, H. (2009). 'The Development of Accounting Quality of IAS and IFRS over Time: The Case of Germany', *Journal of International Accounting Research*, Vol. 8, No. 1, pp. 31-55.

Palea, V. (2007). 'The Effects of the IAS/IFRS Adoption in the European Union on the Financial Industry', *The European Union Review*, Vol. 12, No. 1-2.

Park, Y.W. and Shin H.H. (2003). 'Board composition and earnings management in Canada', *Journal of corporate Finance*, Vol. 185, pp. 1-27.

Patten, D.M. and Trompeter, G. (2003). 'Corporate responses to political costs: An examination of the relation between environmental disclosure and earnings management', *Journal of Accounting and Public Policy*, Vol. 22, pp. 83-94.

Perry, S.E. and Williams, T.H. (1994). 'Earnings management preceding management buyout offers', *Journal of Accounting and Economics*, Vol. 18, pp. 157-179.

Pijper T. (1993). *Creative Accounting.* Macmillan Publishers Ltd., Hands, England.

Pitman, J.A. and Fortin, S. (2004). 'Auditor choice and the cost of debt capital for newly public firm', *Journal of Accounting and Economics*, Vol. 37, No. 1, pp. 113-136.

Platikanova, P. and Nobes, C. (2006). 'Was the Introduction of IFRS in Europe Value-Relevant?', Working Paper series, available on the internet at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=949160

Raffournier, B. (1995). 'The determinants of voluntary financial disclosure by Swiss listed companies', *European Accounting Review*, Vol. 4, No. 2, pp. 261–278.

Rajan, R. and Zingales, L. (1995). 'What Do We Know about Capital Structure? Some Evidence from International Data', *Journal of Finance,* Vol. 50, No. 5, pp. 1421-1460.

Rangan, S. (1998), 'Earnings management and the performance of seasoned equity offerings', *Journal of Financial Economics*, Vol 50, pp. 101-122.

Reeb, D.M., Mansi, S.A. and Allee, J.M. (2001). 'Firm Internationalization and the Cost of Debt Financing: Evidence from Non-Provisional Publicly Traded Debt', *The Journal of Financial and Quantitative Analysis*, Vol. 36, No. 3, pp. 395-414.

Renders, A. and Gaeremynck, A. (2007). 'The impact of legal and voluntary investor protection on the early adoption of international financial reporting standards (IFRS)', *De Economist*, Vol. 155, pp. 49–72.

Richardson, A. and Welker, M. (2001). 'Social Disclosure, Financial Disclosure and the Cost of Equity Capital', *Accounting, Organizations and Society*, Vol. 26, No. 7, pp. 597–616.

Roberts, C., Weetman, P. and Gordon, P. (2005). *'International Financial Reporting: A Comparative Approach'*, 3rd edition, Prentice Hall.

Robichek, A. and Myers, S. (1965). '*Optimal Financing Decisions'*, Englewood Cliffs, N.J.: Prentice-Hall.

Ryan, B., Scapens, R.W. and Theobald, M. (2002). 'Research Method & Methodology in Finance & Accounting', Thomson, 2nd edition.

Sakkelis, E. (2007). '*The Greek General Accounting Project'*, Sakelli Press, Piraeus.

Schipper, K. (1989). 'Commentary on Earnings Management', *Accounting Horizons*, Vol. 3, No. 4-5, pp.91-102.

Sengupta, P. (1998). 'Corporate Disclosure Quality and the Cost of Debt', *The Accounting Review*, Vol. 73, No. 4, pp. 459-474.

Shivakumar, L. (2000). 'Do firms mislead investors by overstating earnings before seasoned equity offering?', *Journal of Accounting and Economics*, Vol. 29, pp. 339-371.

Shockley, R.L. and Thakor, A.V. (1997). 'Bank loan commitment contracts: Data, theory and tests', *Journal of Money, credit and banking*, Vol. 29, No. 4, Part 1.

Singhvi, S.S. and Desai, H.B (1971). 'An Empirical Analysis of the Quality of the Corporate Financial Disclosure', *The Accounting Review,* Vol. 46, No. 1, pp. 120–138.

Soderstrom, N.S. and Sun, K.J. (2007). 'IFRS Adoption and Accounting Quality: A Review', *European Accounting Review*, Vol. 16, pp. 675-702.

Sogorb, F. (2002). 'How SME Uniqueness Affects Capital Structure: Evidence form a 1994-1998 Spanish Data Panel', WP-EC 2002-18, Instituto Valenciano de Investigaciones Económicas.

Spathis, C.T. (2002). 'Detecting false financial statements using published data: Some evidence from Greece', *Managerial Auditing Journal,* Vol. 17, No. 4, pp. 179-191.

Spathis C., and Georgakopoulou E. (2007), 'The adoption of IFRS in South Eastern Europe: the case of Greece', *International Journal of Financial Services Management,* Vol. 2, No. 1, pp. 50-63.

Subramanyam, K.R. (1996). 'The pricing of discretionary accruals', *Journal of Accounting and Economics, Vol.* 22, pp. 249-281.

Teker D., Tasseven, O. and Tukel, A. (2009). 'Determinants of Capital Structure For Turkish Firms: A Panel Data Analysis', *International Research Journal of Finance and Economics,* No. 29, pp. 179-187.

Terpsiadou, M.H. and Economides, A.A. (2009). 'The use of information systems in the Greek public financial services: The case of TAXIS', *Government Information Quarterly*, Vol. 26, No. 3, pp. 468-476.

Tew, B. and Henderson, R.F. (1959). '*Studies in Company Finance'*, Cambridge University Press.

Titman, S. and Wessels, R. (1988). 'The Determinants of Capital Structure Choice', *Journal of Finance,* Vol. 43, No. 1, pp. 1-19.

Tong, G. and Green, C.J. (2005). 'Pecking Order Or Trade-off Hypothesis? Evidence on the Capital Structure of Chinese Companies'. *Applied Economics*, Vol. 37, No. 19, pp. 2179-2189.

Tsai, L.K., Tserng, H.P., Ho, S.P., Sung, C.W. and ChouY.S. (2010). 'Developing and analytical model for the optimal capital structure of the building company', *Journal of Marine Science and Technology*, Vol. 18, No. 3, pp. 385-394.

Tsalavoutas, I. (2009). 'The adoption of IFRS by Greek listed companies: financial statement effects, level of compliance and value relevance', *PhD thesis,* Edinburgh University. UK.

Tsalavoutas, I. and Evans. L. (2010). 'Transition to IFRS in Greece: Financial Statement Effects and Auditor Size', *Managerial Auditing Journal*, Vol. 25, No. 8, pp 814-842.

Tsipouridou, M. and Spathis, C. (2012). 'Earnings management and the role of auditors in an unusual IFRS context: The case of Greece', *Journal of International Accounting, Auditing and Taxation*, Vol. 21, No. 1, pp. 62-78.

Tzovas, C. (2006). 'Factors influencing a firm's accounting policy decisions when tax accounting and financial accounting coincide', *Managerial Auditing Journal*, Vol. 21, No. 4, pp. 372-386.

United Nations (2008). 'Practical Implementation of international financial reporting standards: lessons learned', United Nations Conference on Trade and Development, New York and Geneva.

Union of Greek Listed Companies (2009). 'Companies that entered and exit the ASE', (in Greek).

Van Binsbergen, J.H., Graham, J.R. and Yang, J. (2010). 'The Cost of Debt', The *Journal of Finance*, Vol. 65, No. 6, pp. 2089-2136.

Van de Poel, K. and Vanstraelen, A. (2011). 'Management Reporting of Internal Control and Accruals Quality: Insights from a 'Comply-or-Explain' Internal Control Regime', *Auditing: A Journal of Practice & Theory*, Vol. 30, No. 3, pp. 181-209.

Van der Wijst, N. (1990). 'Modeling interfirm comparisons in small business', *Omega International Journal of Management Science*, Vol. 18, No. 2, pp. 123-129.

Van der Wijst, N.K. and Thurik, R.K. (1993). 'Determinants of Small Firm Debt Ratios: An Analysis of Retail Panel Data', *Small Business Economics*, Vol. 5, No. 1, pp. 55-65.

Van Tendeloo, B. and Vanstraelen, A. (2005). 'Earnings Management under German GAAP versus IFRS', *European Accounting Review*, Vol. 14, No. 1, pp. 155-180.

Vermaelen, T. (1981). 'Common stock repurchases and market signaling: An empirical study', *Journal of Financial Economics*, Vol. 53, No. 313-334.

Verrecchia, R. (1983). 'Discretionary Disclosure', *Journal of Accounting and Economics*, Vol. 5, pp. 179–94.

Vlachos, C., (2001). 'An empirical investigation of the financial disclosure practices of Cypriot and Greek Companies', *PhD Thesis*, Middlesex University, UK.

Wahlen, J. (2013). 'Detecting Earnings Management', Amsterdam Institute of Economics.

Wallace, R., and Naser, K. (1995). 'Firm-specific determinants of the comprehensiveness of mandatory disclosure in the corporate annual reports of firms listed on the Stock Exchange of Hong Kong', *Journal of Accounting and Public Policy*, Vol. 14, No. 4, 311–368.

Wallace, R., Naser, K., and Mora, A. (1994). 'The relationship between the comprehensiveness of corporate annual reports and firm characteristics in Spain', *Accounting and Business Research*, Vol. 25, pp. 41–53.

Warfield, T.D., Wild, J.J., and Wild, K.L. (1995). 'Managerial Ownership, Accounting Choices, and Informativeness of Earnings', *Journal of Accounting and Economics*, Vol. 20, pp. 61-92.

Warner, J. (1977). 'Bankruptcy Costs: Some Evidence', *Journal of Finance*, Vol. 32, pp. 337-347.

Watts, R. (1995). 'Nature and origins of positive research in accounting', in Jones, S., Romano, C. and Ratnatunga, J. (eds), Accounting Theory: *A contemporary Review*, Sydney: Harcourt Brace, pp. 295-353.

Watts, R. (2003). 'Conservatism in Accounting Part II: Evidence and Research Opportunities', *Accounting Horizons*, Vol. 17, pp. 287 – 301.

Watts, R. and Zimmerman, J. (1978). 'Towards a positive theory of the determination of accounting standards', *The Accounting Review*, Vol. 53, No. 1, pp. 112-134.

Watts, R.L. and Zimmerman, J.L. (1986). '*Positive Accounting Theory'*, Prentice Hall.

Watts, R. L. and Zimmerman, J. L. (1990) Positive accounting theory: a ten year perspective, *The Accounting Review*, Vol. 65, No. 1, pp. 131–156.

Weetman, P. (2006). '*Financial Accounting: An Introduction'*, 4th edition, Prentice Hall.

World Bank (2009). 'Doing Business 2009: Comparing regulation in 181 economies', A copublication of the World Bank, the International Finance Corporation, and Palgrave Macmillan.

World Bank (2012a). 'Doing business in a more transparent world. Economy Profile: Greece', available on the internet at www.worldbank.org.

World Bank (2012b). 'Doing business in a more transparent world. Economy Profile: United Kingdom', available on the internet at www.worldbank.org.

World Economic Forum (2008). 'The Global Competitiveness Report 2008-2009', Geneva, Switzerland.

World Economic Forum (2011). 'The Global Competitiveness Report 2011-2012', Geneva, Switzerland.

Wu J.S. and Zhang I.X. (2009). 'The Adoption of Internationally Recognized Accounting Standards: Implications for the Credit Markets', Simon School Working Paper No. FR 09-12, available on the internet at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1425209.

Wu, W.Y. (1997). 'Management buyouts and earnings management', *Journal of Accounting, Auditing and Finance*, Vol. 12, No. 4, pp. 373-389.

Yan, A. (2006). 'Leasing and Debt Financing: Substitutes or Complements?', Working paper series, *Journal of Financial and Quantitative Analysis*, Vol. 41, No. 3, pp. 709-731.

Zarzeski, M.T. (1996). 'Spontaneous Harmonization Effects of Culture and Market Forces on Accounting Disclosure Practices', *Accounting Horizons*, Vol. 10, No. 1, pp. 18-37.

Zhou, H., Koong, K.S. and Xiong, Y. (2007). 'Accounting standards and quality of earnings information: evidence from an emerging economy', *International Journal of Electronic Finance*, Vol. 1, No. 3, pp. 355-372.

Websites

European Central Bank (2012) available at http://www.ecb.int/home/html/index.en.html visited on 25/09/12.

International Monetary Fund (2011) available at http://www.imf.org/external/index.htm visited on 12/05/11.

Ministry of Economy and Finance (2009) available on the internet at http://www.minfin.gr/portal/en visited on 17/06/09.

Official site of Greek Chartered Accountants' Institute (2011) available at http://www.soel.gr/el/ visited on 15/02/11.

Transparency International (2011). 'Corruption Perception Index' available at http://cpi.transparency.org/cpi2011/results/.